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ABSTRACT

Decatur High School in Federal Way, Washington, initiated Project 80, a long-range effort designed to individualize and improve the educational process by using research, technology, and scientific management systems to free teachers to personalize education for learners. Starting in 1969 a three year Elementary and Secondary Education Act Title III grant provided initial support: 1) for the selection and training of staff in the philosophy underlying individualized instruction; 2) for the development of learning activity packages (LAP) which allowed students to select topics and learning styles, to make individual commitments with teachers, and to participate in curriculum development and evaluation and the design of the systems needed to manage the LAPs in the classroom. By 1972 over 100 staff were trained and 90% of the basic curriculum relied upon LAPs. Evaluation showed that the project successfully developed positive student attitudes toward self, teachers, education, and school. Results from the Test of Academic Progress (TAP) indicated that an individualized program based upon LAPs maintained a level of achievement comparable to that of other schools in the district. (Author/PB)

EM

P R O J E C T 80

LEARNING ACTIVITY PACKAGES

FINAL REPORT - 1972

PROJECT NO. 17-210-71-430 FEDERAL NO. 56-69-0038-2

Federal Way School District No. 210

John Bocek, Chairman
Board of Education

Dr. George C. Cochran, Superintendent
Thomas P. Chapman, Project Director

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PROJECT 80 - MANAGEMENT OF INDIVIDUALIZED LEARNING USING LEARNING ACTIVITY PACKAGES

ABSTRACT

Project 80 was designed to develop and implement the management of individualized learning using learning activity packages at Decatur High School in Federal Way, Washington.

In the summer of 1969, initial selection of staff was made. The Title III grant provided initial support for re-training of staff in the philosophy and attitudes underlying individualized instruction, for development of LAP's and systems for managing them, and for implementing LAP's into the classroom. By the end of the 1971-72 school year over 100 staff members in the district had been trained and approximately 90% of the basic curriculum at Decatur High School was LAP based.

We appear to have been successful in developing positive student attitudes toward self, teachers, education and school. Responses of students are very positive. The results of achievement measures using the Test of Academic Progress (TAP) lead us to believe we were able to implement an individualized program based on LAP's and, at the same time, maintain a level of achievement which is comparable to other high schools in Federal Way.

PROJECT 80 - MANAGEMENT OF INDIVIDUALIZED LEARNING USING LEARNING ACTIVITY PACKAGES

SUMMARY

Decatur High School in Federal Way, Washington, is being developed through Project 80 - a long-range project designed to systematically individualize and improve the educational process - implementing research, technology, and scientific management systems to free teachers to personalize education for learners of all ages by 1980.

We have completed a three year Title III grant for the development and implementation of only one phase of Project 80 - The Management of Individualized Learning Using Learning Activity Packages. This program offers an important approach to meeting the needs of high school students.

The Learning Activity Package system involves the student in the selection of topics within the course requirements; involvement in selecting his best style of learning (group activities, A-V materials, reading, etc.); involvement in making individual commitments with the teacher; and involvement in curriculum development through evaluation of the LAP's and by developing other LAP's in areas where he has developed an expertise.

Because the LAP system allows students to select topics of interest to them, their chances of success are improved. LAP's also require the student to develop more self-responsibility which promotes self-confidence. Because teachers spend most of their time working with individual and small groups of students in using LAP's, the teachers are more aware of the individual student's strengths and are able to emphasize those things which he does well and accurately diagnose his areas of weakness.

The LAP system provides a structure and guideline to help students work individually as fast as they are able. This process of using carefully developed lesson plans for individual students allows the teacher more time in class to meet with student s on a one-to-one or small group basis. Most

teachers freely admit that they know more about individual students than they ever have in previous years. Artificial status barriers between students and teachers also tend to be reduced as individual communication, understanding and respect increases.

One of the chief advantages of the LAP system is that of expanding the offerings and choices available to students. For example our staff is able to offer as many individual courses as other high schools with four times the number of staff members. In English for example, a student may have a choice of as many as 75 learning experiences within a single class period. Working from a diagnostic prescriptive approach the teacher helps individual students to find lessons appropriate to their needs and interests. The use of seminars, films, and speakers allow group studies which are also vital to the process. Individual contracts for independent study allow students to go beyond the limitations of prepared LAP's. Students receive fractional credits for only those units of work they actually complete satisfactorily.

The LAP system requires much more flexibility of movement, use of resources, and consideration of alternatives on the part of the administration. Arbitrary regulations and actions are difficult to defend. The neatly organized classroom is modified as the range of student activities and thought expands beyond the resources of the classroom and beyond the school itself. More attention is given to systematic coordination of the resources of the community as well as those within the school. The need for building administrators to be able to plan, to respond, and to make decisions regarding money at the building level becomes more and more apparent.

The use of community resources becomes an integral part of the LAP system. In fact some LAP's are designed specifically to take a single student or a whole group of students into the community to explore jobs, gather data, perform services, use resources, and to bring resources into the school. Sometimes a LAP may be produced by a person in the community who has a special expertise not available on the staff. Teachers, students, parents, and other citizens are continually involved in the learning process.

Is a learning management system using learning packages a feasible base for individualizing a total high school curriculum? From our experience and from the research we have done on learning packages, we feel that it is not only feasible but a worthwhile goal.

We appear to have been successful in developing positive student attitudes toward self, teachers, education and school. The data from our student questionnaire, as shown in objective 5, part E, indicates that responses of students are very positive. The results on our TAP lead us to believe that we were able to implement an individualized program based on LAP's and, at the same time, maintain a level of achievement which is comparable to other high schools in Federal Way.

The apparent success of the project has led many schools to incorporate our ideas into their programs.

CONTEXT

Federal Way, Washington, is a suburban community located between Seattle and Tacoma. The students served by this program are from white middle-class families. Many people work for Beoing but at present there is a high unemployment rate.

The school system has, for the past ten years, been one of the fastest growing districts in the state. The new facilities which have been constructed to accommodate this growth have been open concept buildings designed to facilitate individualized instructions.

The need of children for a more personal and individualized program was identified by the district staff through questionnaires, discussions, and meetings with parents, teachers and consultants.

Early efforts in our district to manage individualized instruction were through the use of commercially prepared self-contained kits which were diagnostic and prescriptive.

No major effort to individualize instruction existed in our district up to the time that Project 80 was initiated. After much study, Project 80 selected the Learning Activity Package as the basic management system for individualizing instruction.

The help and cooperation of the Department of Instruction of the Federal Way School District and the Department of Education of the State of Washington were essential to the development of our program.

PROGRAM DESCRIPTION

SCOPE OF THE PROGRAM

The overall goals of the project were developed in 1969. They are aimed at developing only one of the many aspects of the effort to systematically individualize and improve the educational process.

1. To prepare Learning Activity Packages as a base for an individualized high school curriculum.
2. To train teachers to develop and operate an individualized learning management system using Learning Activity Packages.
3. To implement a high school curriculum using LAP's to manage an individualized program to meet personal student needs.
4. To use community resources to develop a stimulating high school program, to reduce dropouts and encourage continuing education for all.
5. To develop and operate a demonstration school to encourage teacher and administration training and evaluation and dissemination of new techniques and learning management systems.

PERSONNEL

A. Director

The principal of Decatur High School was the director of Project 80 during its first two years of preparation. The director during the third year also served as the Coordinator of Curriculum Development at Decatur High School.

B. Teachers

Prospective teachers for the high school staff were selected were selected and trained during summer and in-service workshops. After being trained their main task was to develop and implement a learning management system based on LAP's.

C. Instructional Aides

Five full time instructional aides were used to aid in monitoring the testing center; coordinating volunteers and visitors; developing the industrial arts program; distributing

and receiving instructional materials and equipment; and developing and printing materials.

D. Volunteers

Parents put in countless hours providing transportation, classroom demonstrations, and leadership in the PTSA. Many other citizens served over the three years on our advisory committee.

E. Production Aides

The production of LAP's is a large task. Aides were used to type, collate, staple, file and process LAP's as they were needed.

PROCEDURES

PROJECT 80

PAST - PRESENT - FUTURE

WHEN IT STARTED:

1965 - Community Survey of Needs, Attitudes, and People

1966 - FOCUS Federal Way - Citizens Study on Educational Needs

1967 - Citizens' School Advisory Council Study on School Building Needs

1967 - Fall - Principal selected for third high school

1968 - Winter - Architect selected

1968 - Spring - Building Planning Committee Appointed

1968 - Summer - Intensive Planning Conference

Analysis of Student Needs and Citizen Recommendations

Analysis of Learning Research

Analysis of Developing and Operating Programs

Analysis of Technological Developments & Planning

Analysis of State and Local Requirements

Analysis of Potential Obstacles

Analysis of Local Resources

Analysis of Potential Resources Outside

Decision upon 1980 as target date for total implementation

Established agreement on goals for program needed

Developed concepts on how goals might be reached

Projected building needs from start in 1971 through the projected technical, social, and economic developments of the 1980's.

Developed schematic drawings to test interpretations of program implementation.

1968 - Fall - Research and testing on concepts and operating programs that might serve as models for parts of our program.

Presentation of long-range recommendations to local Board

Board and Staff conducted visits to selected programs and facilities to evaluate feasibility of proposal.

Board approved plan for implementation

District coordinators, teachers, and students involved in developing specific program projections and needs for building, materials, equipments, and training needs of personnel.

Foundation grant awarded to assist in developing financial grants to implement the program

Title III Application Developed

1969 - Winter - Program model refined and building specifications developed

Began testing model and proposals with community groups

Title III Application Rejected - "objectives too vast"

Title III Application Revised - Limited to Development of LAP materials and management system

Citizen's Advisory Committee formed

Strong confirmation and endorsement of goals from community groups. Approximately 1500 individual citizens involved in planning 1969-71.

1969 - Spring - District coordinators begin to test concepts in other schools

Title III Project Approved

Initial staff recruited and hired for Title III Project

Began initial training

1969 - Summer - Title III workshop training in LAP development with experienced staff at Hughson High School in Hughson, California

1969 - Fall - Staff continued part-time at district expense for planning and in-service during year.

1969 - 70 - Fall - Winter - Spring - Conducted district-wide, in-service programs to train teachers to develop LAP's

State building funds depleted - program diverted to Illahee with junior high school program added

Continued planning for implementation of Pilot Program for 1970-71, school year

Citizens' Advisory Committee enlarged

Title III Project renewed for second year

Students registered for pilot program

1970 - Summer - Title III Workshop to develop courses, write, review, and revise LAP's to be used in Pilot Program and by other staff remaining in other schools for grades 7-11.

LAP production begun at Federal Way

LAP master file begun for staff reference

Staff began training in instructional management

1970 - Fall - Pilot Program begun with 115 students in LAP's in English, World History, biology, math, and bookkeeping while other subjects are being taken in traditional classes at Federal Way High School.

Conducted Saturday in-service sessions

Continued evaulation, planning, and modification of management system with LAP's.

Boeing cutback and delays with State building funds cause reevaluation of plans with decision to start the first full program with 400 students in grades 9-11 at Illahee to relieve some pressure at both the junior high and the senior highs (district growth continues).

1971 - Spring - Pilot Program development is on schedule and original objectives appear feasible.

Final staff selections for 1971-72 started.

Students registered for 1971-72

Title III Project renewed for third year.

1971- Summer - Title III Workshop to develop each course which is to be taught, to train all staff, to develop skills in planning, decision making, management of resources, individual and student guidance.

Writing of LAP's which direct students to explore, to use, to serve and to identify specific community activities and resources.

Preparation of high school curriculum based on a LAP based learning management system.

WHERE WE ARE NOW:

1971-72 - Implement a full high school program, grades 9-11, using the LAP's as a management base for 70% of the instruction.

Stress role of teacher-advisor as liaison with parents

Utilize increasing amounts of community involvement

Continue to evaluate, plan,and modify programs

Continue to train teachers

Implement a program for observers

Implement a teacher-intern program with colleges

WHERE WE PLAN TO GO:

1972-73 – Continue and expand LAP program

Increase emphasis on systems management and analysis, audit, and efficiency of operations

Increase emphasis on development of career clusters

Become more involved with the community as a learning resource.

1973-74 – Expand attendance

Expand career development programs

Increase in-house production of instructional materials in all media, including LAP's

Begin community school concept with copperative programs with Highline Community College

Increase staff training in technical developments

1975-80 – Continued emphasis on extending the learning activities into the greater Puget Sound community

Move to new high school facility

Continued evaluation and modifications based upon data

Continued implementation of technology to facilitate learning

Continued demonstration, training, and service to the profession.

It appears that most of the needs of students which we have identified can be satisfied by an individualized program which uses Learning Activity Packages. The changes which took place in students were our ultimate goal. Once we decided to manage individualized learning by using LAP's their preparation, management, and implementation becomes a major task. The re-training of experienced teachers to manage individualized learning using LAP's was our first step.

In the summer of 1969 initial selection of staff was made and each attended a four week workshop on LAP development in Hughson, California. These staff members continued the following year to train others in in-service and summer workshops. These workshops have continued throughout the three years of our grant and at this time approximately 100 teachers have been trained

in our district. The Title III grant provided initial support for re-training of staff in the philosophy and attitudes underlying individualized instruction, for development of our LAP's and systems for managing them, and for implementing LAP's into the classroom.

Development of LAP's covering the total high school curriculum began two years ago. A pilot project was developed for 120 sophomores who studied English, social studies, math, and science using LAP's. This was expanded this year to a total program for 370 ninth, tenth and eleventh grade students. Approximately 90% of the curriculum is LAP based.

Utilization of community resources is developing and all programs have LAP's which encourage students to become more involved, both on and off the campus, with the community.

Several members of our staff have participated in workshops and demonstrations in numerous districts around the state. Teacher and administrator training continues with seven student teachers and three administrative interns. Evaluation and modification of the program is continuing with help from hundred of visitors who have prepared written evaluations of our programs.

BUDGET

The total expenditures of Title III funds for this project during the three-year period have amounted to $165,030.00. The majority of these funds have been for additional salaries for staff during their training and LAP writing workshops. Less than 10% of our costs were for supplies and we have purchased no equipment with this money.

Our expenditures for travel and consultants have been extremely worthwhile. The consultants gave us direction and helped get the planning started. Travel to visit programs which attempt to do the same thing we are doing has been inspirational, motivational and informative.

EVALUATION

The chief objective of the program was to implement a high school curriculum using learning activity packages to manage an individualized learning program designed to meet personal student needs. In order to do this it was necessary to train staff to write and use a LAP based learning management system; to write, revise, and adapt enough LAP's to provide for approximately 70% of the basic curriculum; and to use community resources to develop a stimulating program.

There were many interim objectives over the three years of the project. They were all aimed at accomplishing our chief objective.

Each of the LAP's was evaluated by the project director and was of a quality to justify printing for student use. A pre-test and a post-test on skills, knowledge, and attitudes was administered to determine the effectiveness of the shorter, intensive approach to teaching the process.

Content, quality, and supporting materials were reviewed and approved by the subject area team during the writing. Students, when available, tested the packages for clarity, interests level, and management factors prior to being submitted to the director for publication.

The house chairmen were responsible for supervising and coordinating community visits. Whenever possible, students assisted with the planning and evaluation before visitation.

Pre-tests and post-tests were used to determine progress and completion of objectives. The director and each teacher discussed and evaluated each management system before it was implemented. Final payment for the workshop was made when the director approved completion of these objectives.

Every phase of the program was open to evaluation and modification as better approaches were found. Over 500 visitors were seen during the 1971-72 school year. Many visitors were used as resources for students and staff. Visitors were also asked to provide the staff with written evaluations of their observations.

Success of the LAP system during the past year was evaluated upon the following criteria:

A. By May 1, 1972, at least 85 percent of the students will state a preference for the individualized instruction system using LAP's over the traditional classroom method.

* A three page questionnaire given to all students in December has given us some preliminary measures of our success. Two of the questions asked were:

1. At the present time LAP's (or the LAP approach) are available in most of my classes. Where available, I use this approach.

   16% all of the time
   50% most of the time
   26% some of the time
   6% hardly at all
   2% none of the time

2. In the classes where LAP's are available and used, I prefer these over traditional classroom methods:

   18% all of the time
   34% most of the time
   34% some of the time
   9% hardly at all
   5% none of the time

Data on our later questionnaire is not available for this report.

B. By May 1, 1972, at least 85 percent of the teachers in the project will rate the LAP based management system more favorably than their experiences with the traditional classroom experiences.

* This specific question was asked of teachers and 94% responded favorably. More and more LAP's are being used each day and all but two staff member have indicated plans to return to Decatur next year. One received a fellowship to complete

B. (cont.) a master's program and the other moved to a more responsible coaching position.

D. In May a jury of subject area specialists representing the Federal Way school district evaluated the program and reported their findings and recommendations to the staff.

Our staff worked several months with the subject area specialists on this program evaluation.

Four of these program evaluations are presented here:

Program: Communications

Evaluators: Rowlands, Ramsey, Chisholm

Date(s): April 11, 12, 1972

School: Decatur High School

PART I - INPUT FACTORS

- Facilities
- Material, Equipment and Supplies
- Learner Entry Characteristics

Summation: Space and furniture are adequate but perhaps not well used (Rooms 301, 304). Students and teachers were crowded into one area and a vast open area was unused. This observer recommended some ide for changes that were readily accepted. Room 102 for speech activities and journalism was most adequate. Storage for VTR equipment was good. Darkroom facilities were good even though the room was not originally intended for a dark room.

PART II - CONTENT

- Goals
- Objectives
- Articulation

Summation:
Written goals were not visible but objectives for each LAP are stated clearly for each student. Goals for Decatur are embedded in some of the early descriptive materials prepared by the staff.

PART III - METHODOLOGY/ASSESSMENT

- a.) Individualization
- b.) Interpersonal Regard
- c.) Creativity
- d.) Group Activities

Summation: Program appears to be achieving goal of individualization. Interpersonal regard: observed two extremes here - consideration and inconsideration. Observers saw atmosphere for creativity and some results of creative efforts. Two kinds of group activities: Kids working on separate projects in a group and kids working in a group on a common problem.

PART IV - ACCEPTANCE

- Faculty
- Student

Summation:
Information from the portion of the Purdue Teacher Opinionaire used indicates strong teacher acceptance of the program.
Approach tendencies are above the range of previous measures because of the significant number of respondents showing strong and moderate approach tendencies. The preponderance of students showing strong avoidance tendencies at the 0 - 25% level and the non-significant number at the 76 - 100% level indicate generally favorable student response communications.

PART V - OUTPUT FACTORS

- Learner Exit Characteristics
- Systems Objectives

Summation: See results of TAP and Student Attitude Questionnaire.

II

CONTENT

GOALS: How are educational goals of the instructional program kept visible?

There are no wall posters or bulletin boards that reveal the educational goal of Decatur or the Communications Department. Perhaps there should be something that could be displayed occasionally or in various places that states the Communications learning goals. This should be a staff decision and not one imposed by an outsider.

OBJECTIVES: How are learner objectives made available to students?

Learner objectives are available to students in the LAPS which state the objectives needed for the task. Other objectives are prepared and written or stated by the teacher in small group sessions. In the few LAPS written by the students, they have been responsible for writing and including the objectives.

ARTICULATION: Are major concepts included in course offerings?

Yes. However, it must not be assumed that all major concepts are included. As the student body and staff increase and change, the course offerings will change because of student demands and teacher interests and abilities.

Are basic skills (psychomotor, cognitive, and process skills) included in course offerings?

Yes, although there may not have been conscious effort on the part of the authors to include such skills.

How do programs offered pick up student at point where he enters?

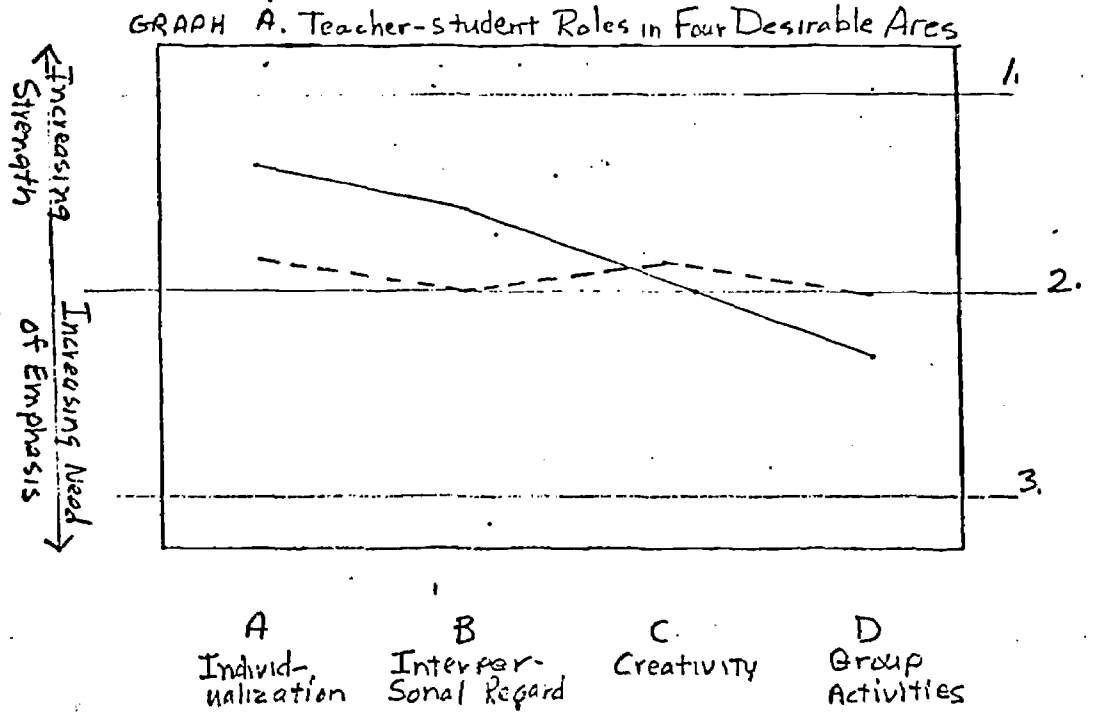
Programs allow a student to enroll in areas of his interest. All students enroll in communications courses and counseling is done to help them select appropriate courses.

How do programs offered provide opportunity for cross-discipline learning activities?

Opportunity for cross-discipline is provided but cross-discipline is not guaranteed for each student. Some of the LAPS allow students to research in various areas.

ANALYSIS OF CRITERION ITEMS RELATED TO INDICATORS OF QUALITY

Graph display A illustrates elements of teacher role (soild line) and student role (dashed line) indicators as indentifiable in two observation periods. Using a numerical scale of 1, 2, and 3, as strength, neutral or not observable, and in need of emphasis respectively and assessing instructional activity with items related to INDIVIDUALIZATION, INTERPERSONAL REGARD, CREATIVITY, and GROUP ACTIVITIES, three observers collaborated on weighted values for criterion items.



Although specific teacher roles and students roles were used to assess the instructional setting, the following check list of key concepts provides a sense of those elements that contribute to the graphic data.

Analysis of GROUP ACTIVITIES requires some explanation as it was found to be rather difficult to distinguish between elements of INTERPERSONAL REGARD and some aspects of GROUP ACTIVITY. It is felt that the key concepts of group activity are elements in need of emphasis, and perhaps are actually the greatest inadequacy of the program. The most striking impact felt by the evaluators was experienced upon the realization that no "group" activities are evident. Collections of students work together but on individual pursuits. Group goals, commitments, and problem solving are not in evidence, nor is a sense of belonging, or interdependency evident.

The concepts of GROUP ACTIVITY ought to be given more consideration in terms of impact on the learner.

INDICATORS OF QUALITY

Key Concepts of Individualization

1. **Knowledge of pupils.** The teachers know each pupil. This concept is broader than merely knowing an I.Q. or a reading score. It includes knowing the habits, interests, hobbies, family relationships and other aspects of the pupil's life outside the classroom.

2. **Physical facilities.** A variety of resources is available and in use. This covers every type of resource for in-class or out-of-class use, including programmed materials, audio-visual aids, as well as books, newspapers, magazines and specimen objects.

3. **Different tasks.** Different pupils work on different tasks, selected at least in part by the pupils themselves. Teachers make a variety of assignments designed to individual requirements for both in-class and out-of-class work.

4. **Participation.** Learning activities are sufficiently varied that all pupils are seen participating in some learning activity.

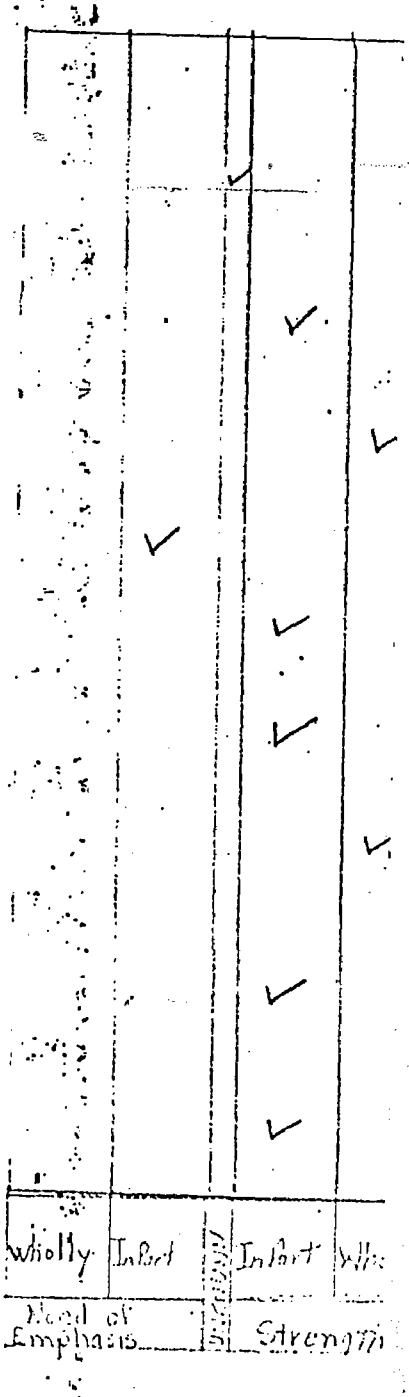
5. **Communication.** Instead of sending out oral messages to "whom it may concern", the teacher communicates individually as may be needed with pupils singly or in small groups.

6. **Modification of questioning.** The teacher's questions vary in type and difficulty for different pupils, and in order to make sure each pupil understands.

7. **Complementary teacher-pupil roles.** The teacher adopts the role of a resource person and helper; the pupils contribute to the direction or content of the lesson and have the opportunity to lead and initiate change.

8. **Time for growth.** The time that pupils require to complete a given task or master a given concept or skill must, because of individual differences, vary greatly. The teacher therefore provides for both extra help and enrichment through planning or allowing the use of extra class time.

9. **Individual evaluation.** Instead of a fixed standard that all are expected to attain, or fail by the wayside, evaluation is judged as change or improvement at individual rates of growth and development.



Authorities consulted on Individualization of Instruction: David W. Beggs, Knute O. Broady, Edmund G. Bullis, Theodore Clymer, Walter W. Cook, John Dewey, Edgar S. Farley, Miriam L. Goldberg, Robert Havighurst, Joseph Justman, Nolan C. Kearney, Alice V. Keliher, Nancy Larrick, May Lazar, Murray J. Lee, A. Harry Passow, James B. Pugh, E. A. Reed and Fred Weaver.

INDICATORS OF QUALITY

The four characteristics of the educational setting that are examined in applying *Indicators of Quality* were determined by educational experts who were asked to decide upon what bases they would judge school quality. Since all four have to do with behavior of pupils and teachers, it is possible to watch the teaching-learning procedure and determine from the behavior observed whether the intent of one or another is present. But this necessitates knowing what specific aspects of behavior are critical to the realization of each criterion characteristic.

Key Concepts of Interpersonal Regard

10. Demeanor. The teacher is relaxed, good-natured, cheerful, courteous and, if using humor, always inoffensive, rather than yelling, shouting, frowning, glaring, insulting or sarcastic. Pupils reflect similar demeanor.

11. Patience. Both teacher and pupils take time to listen to and accept one another, rather than press, hurry, interrupt or give rigidly directive orders.

12. Pupil involvement. Pupils are eager, prompt, willing, show initiative or make voluntary contributions, instead of being apathetic, reluctant or slow to respond.

13. Physical movement is permissive, free, instead of submissive and dominated by the teacher.

14. Respect. There is mutually shared respect among pupils and teacher as evidenced by commending, accepting, helping, rather than rejecting or ignoring.

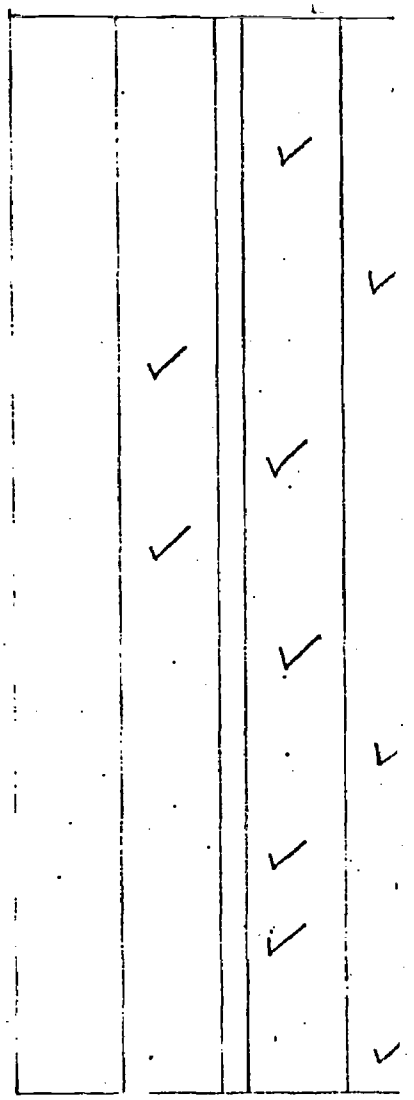
15. Error behavior. Pupils and teacher both openly and naturally accept and recognize errors of each other, rather than trying to cover up, losing face or showing guilt.

16. Pupil problems. Personal problems or handicaps are accepted with consideration, understanding and sympathy, rather than with ridicule or embarrassment.

17. Atmosphere of agreement. Pupils and teacher respect opinions of others and come to agreements without external coercion; conflict and hostility are not characteristic of problem solving.

18. Teacher-pupil identification. Teacher meets pupils on their level as one of them and is not withdrawn, aloof or superior.

19. Evaluation as encouragement. Positive, encouraging and supportive criticism, which pupils accept, is used rather than discouragement, disapproval, admonishment, blame or shame, which pupils ignore or reject.

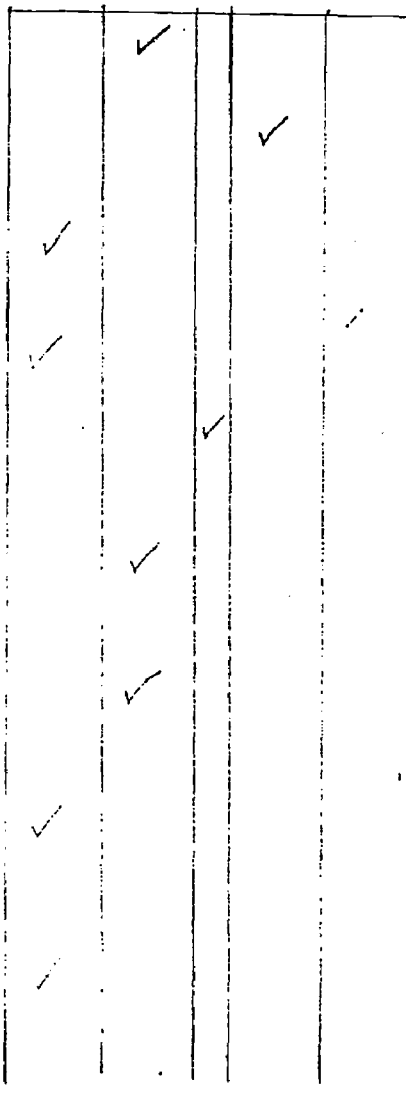


Authorities consulted on Interpersonal Regard: Edmund J. Amidon, Paul S. Amidon, Harold H. Anderson, Norman D. Bowers, Helen M. Brewer, Joseph E. Brewer, David Cahoon, Morris Lewis Cogan, Francis G. Cornell, David W. Darling, Ned Flanders, Ernest Hilgard, Earl C. Kelley, Kurt Lewin, Gordon P. Liddle, Carl M. Lindvall, Ronald Lippitt, Ardelle Llewellyn, Donald M. Medley, Harold E. Mitzel, Hugh Perkins, Mary F. Reed, Richard E. Ripple, Seymour Sarason, Joe F. Soupe, Pauline Sears, B. F. Skinner, Robert S. Soar, Charles E. Stewart, David E. Templeton, Herbert Thelen, Ralph K. White, Fred T. Wilhelms, and John Withall.

An extensive search of the literature was made — books, pamphlets, periodicals, anthologies, research studies proposed, written or reported by authorities in each of the four areas. What do the experts, as a group, say must be present in the classroom setting in order for *individualization of instruction* to be realized? What must be present for *interpersonal regard*? What for *creativity*, for *group activity*? Conversely, what in the classroom setting works against the realization of each?

Certain key concepts were found to define the content of the four criteria. Nine key concepts of *individualization* were discerned, ten key concepts of *interpersonal regard*, nine key concepts of *creativity* and twelve key concepts of *group activity* — forty key concepts in all.

Key Concepts of Creativity



20. Time for thinking. Time is allowed to think and discover, play with ideas, manipulate objects, experiment, without pressure to get "*the* answer" or get it "right".

21. Abundance of materials. Pupils have the stimulation of materials and other resources in great richness and variety.

22. Skills of thinking. A variety of skills used in creative thinking is practiced: inquiring, searching, manipulating, questioning, abstracting, analyzing, summarizing, outlining, generalizing, evaluating and the like.

23. Testing ideas. The examination, comparison and testing of divergent ideas are encouraged, as opposed to referring to authority.

24. Unusual ideas. Unusual ideas are entertained without anxiety or tension, and unusual questions are considered with respect.

25. Question and answer technique. The teacher uses open-ended questions rather than questions with a "right" answer, presents unsolved problems rather than a lecture with "correct" information filled in; pupils test and challenge rather than attempt to key in on the wanted correct answer, and are encouraged to consider questions for which they do not have the answer.

26. Self-initiated activity. Pupils take responsibility for self-initiated learning, extend the limits of the topic, and the teacher encourages and credits pupil efforts to go beyond the lesson plan, assignment or question.

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or pupil behavior; others may be discerned both in what teachers do and in what pupils do. This overlap among the two types of "actors" on the classroom "stage" — teachers and pupils — results in a total of 51 items in the instrument derived from the 40 key concepts.

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Key Concepts of Group Activity

29. Physical arrangement. Seating facilitates interaction, as in face-to-face rather than audience situations.
30. Teacher purpose: The objectives and purposes of the teacher are to cultivate and facilitate social skills, cooperation, idea exchange and shared problem solving, rather than require pupils to work in isolation.
31. Decision-making. The group shares in decision making, rather than having decisions made by the teacher and the group told what to do.
32. Intercommunication. There is pupil-pupil communication as well as teacher-pupil communication, and pupils are free to seek assistance among their group mates.
33. Conflict resolution. Where conflict among group members occurs, the group itself resolves the conflict rather than requiring policing by the teacher.
34. Cooperation. All pupils are seen cooperating in the group activity.
35. Role distribution. Pupils share the leadership role with the teacher, and are free to disagree with teacher proposals.
36. Group goals. Goals of the group are accepted by all members of the group, instead of factionalism that divides the efforts and purposes of the group.
37. Group personality. Syntality, cohesiveness, or a feeling of internal interdependency characterizes the group personality.
38. Consensus. The rules or mechanisms for arriving at group decisions result in uncoerced consensus rather than the forcing of a leader's opinion or hostility of a minority.
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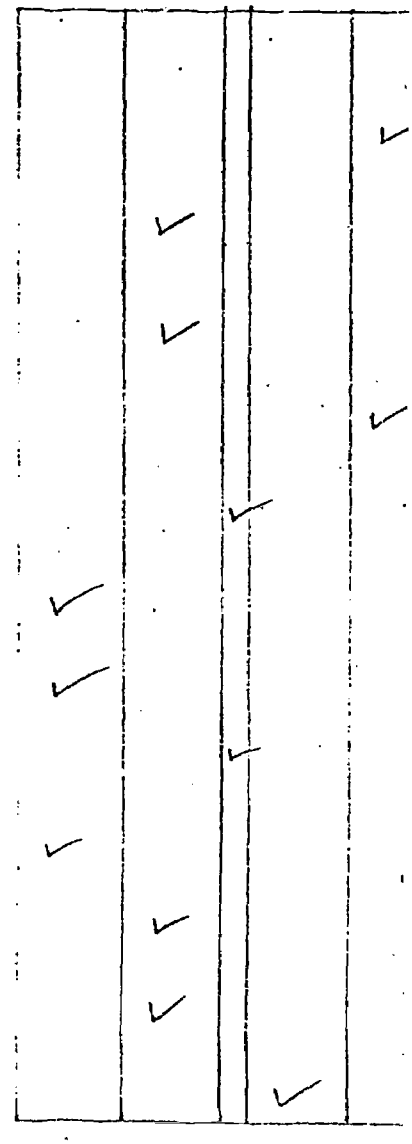

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ANALYSIS OF TEACHER ACCEPTANCE - COMPOSITE MATHEMATICS, SCIENCE, AND COMMUNICATIONS

The PURDUE TEACHER OPINIONAIRE provides a basis for comparing the level of morale for individual teachers or teacher groups with a large population of teachers (3023 teachers in Oregon and Indiana). Table 4. illustrates the relative positions of five teachers as identified by responses on one portion of the instrument.

TABLE 4. RELATIVE POSITIONS OF FIVE TEACHER'S EXPRESSIONS ABOUT ADMINISTRATIVE SUPPORT AND RAPPORT

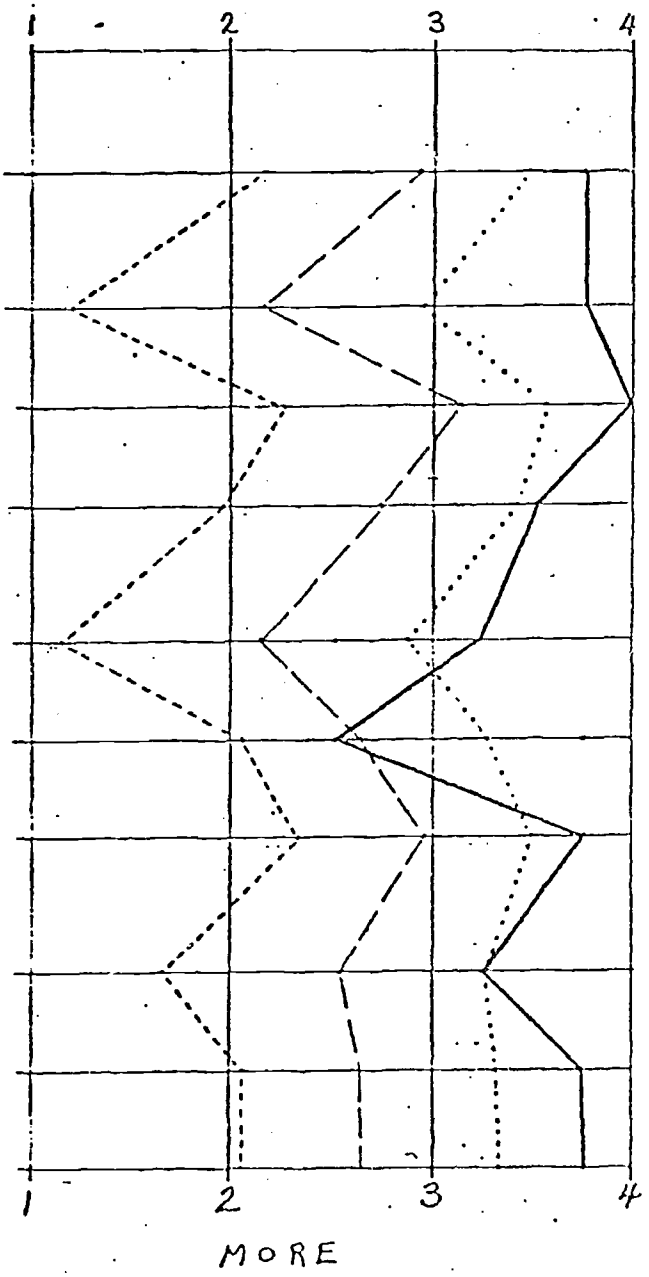
Stanine	9	8	7	6	5	4	3	2	1
Description	VERY HIGH	HIGH	ABOVE AVERAGE		AVERAGE		BELOW AVERAGE	LOW	VERY LOW
TEACHER A		X							
TEACHER B			X						
TEACHER C				X					
TEACHER D					X				
TEACHER E	opinionaire not available for inclusion								
COMPOSITE				X					

Graph display B provides item score information for comparison purposes. Shown are quartile scores of 3023 teachers plotted as line graphs and mean scores of four teachers on each item plotted as a line graph.

Graph display B is on the following two pages.

Graph display B.

1. The work of individual faculty members is appreciated and commended by our principals...
2. Teachers feel free to criticize administrative policy at faculty meetings called by our principals.....
3. Our principal shows favoritism in his relations with the teachers in our school.....
4. My principal makes a real effort to maintain close contact with the faculty.....
5. Our principal's leadership in faculty meetings challenge and stimulated our professional growth.....
6. My principal makes my work easier and more pleasant.....
7. My school principal understands and recognizes good teaching procedures.....
8. The lines and methods of communication between teachers and the principal in our school are well developed and maintained.....
9. My principal shows a real interest in my department.....
10. Our principal promotes a sense of belonging among the teachers in our school.....



11. My principal is concerned with the problems of the faculty and handles these problems sympathetically.....

12. I do not hesitate to discuss any school problem with my principal.....

13. My principal acts as though he is interested in me and my problems.....

14. My school principal supervises rather than "snoopervises" the teachers in school.....

15. Teachers' meetings as now conducted by our principal waste the time and energy of the staff.....

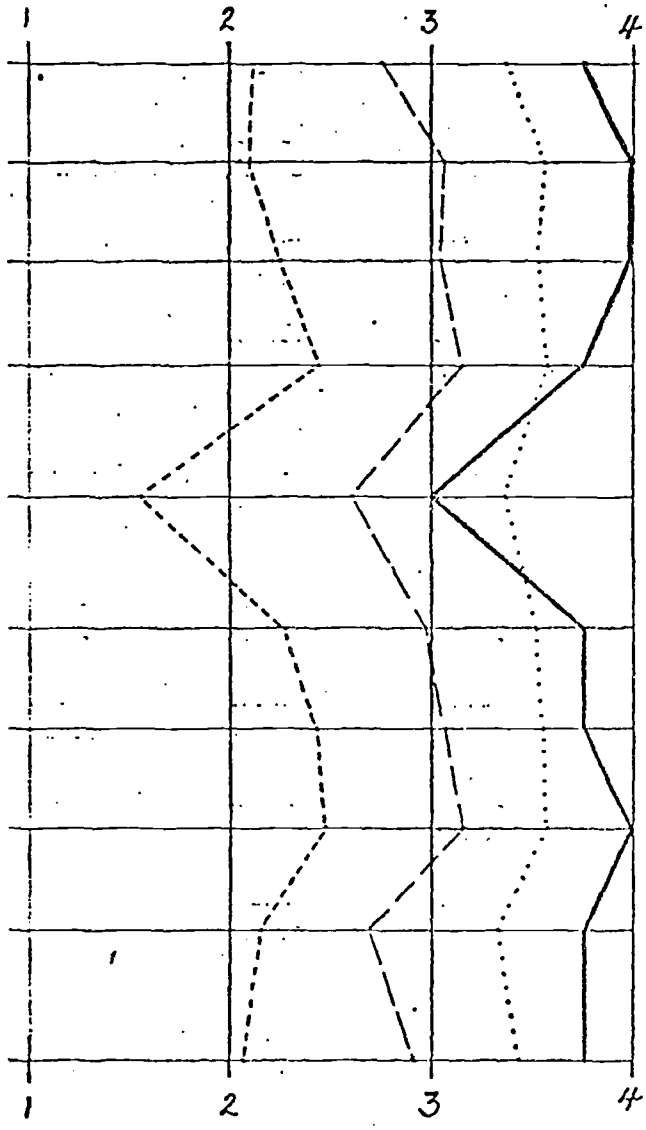
16. My principal has a reasonable understanding of the problems connected with my teaching assignment.....

17. I feel that my work is judged fairly by my principal.....

18. My principal tries to make me feel comfortable when he visits my classes.....

19. My principal makes effective use of the individual teacher's capacity and talent.....

20. Teachers feel free to go to the principal about problems of personal and group welfare.....



KEY: Upper Quartile Median .....
Middle Quartile Median — — —
Lower Quartile Median ------
MEAN OF Item Scores ————

ANALYSIS OF STUDENT ACCEPTANCE - COMMUNICATIONS PROGRAM

AVOIDANCE - APPROACH TENDENCIES SPRING 1972

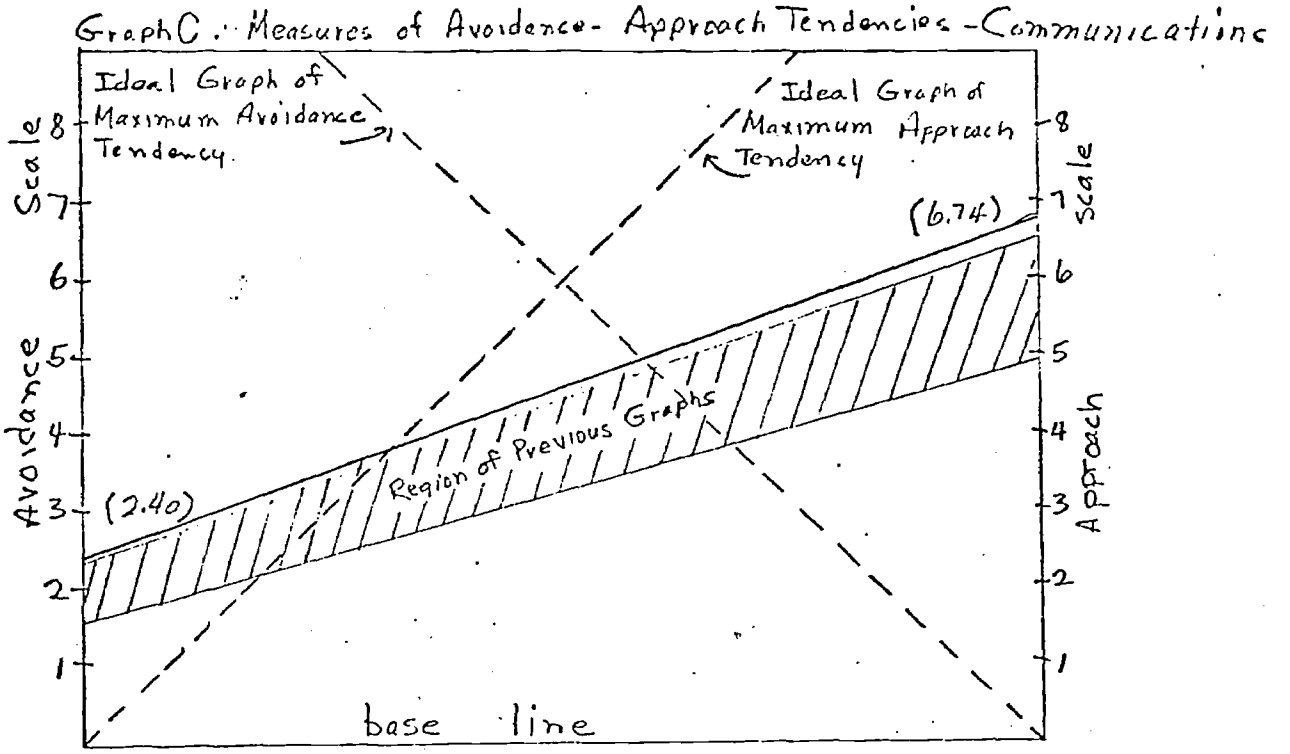


Table 3. The soild line in Graph C shows the extent of approach and avoidance tendencies of Decatur High School pupils toward use of Learning Activities Packages in Communications. The crosshatch section is the region of previous graphs that show the same tendencies. The bold line shows a slight improvement in approach tendencies for Communications LAPs in April 1972 over the region of previous graphs.

Table 5. - Students identifying various modes of avoidance - approach tendencies are shown in this table.

Tendency Mode	No. Students	Percentage
Strong approach tendency (choosing 76 - 100% approach indicators)	86	33%
Moderate approach tendency (choosing 51 - 75% approach indicators)	58	23%
Moderate approach tendency (26 - 50% approach indicators)	58	23%
Non-significant approach tendency (0 - 25% approach indicators)	56	21%
Strong avoidance tendency (choosing 76 - 100% avoidance indicators)	4	2%
Moderate avoidance tendency (choosing 51 - 75% avoidance indicators)	25	8%
Moderate avoidance tendency (26 - 50% avoidance indicators)	39	15%
Non-Significant avoidance tendency(0-25% avoidance tendency)	190	75%

OUTLINE AND SUMMARY

Program: Mathematics **Evaluators:** Ramsey, Rowlands, Chisholm

Date(s): April 6 & 7, 1972 **School:** Decatur High School

PART I - INPUT FACTORS

- Facilities
- Material, Equipment and Supplies
- Learner Entry Characteristics

Summation:

Facilities appeared to be adequate with a variety of identifiable teaching-learning stations. Material, equipment, and supplies appeared to be adequate. Student activities observed were verbal study oriented even though students interviewed were aware of I.M.C. materials and various math models.

Analysis of T.A.P. measures indicate that the student population is a bias sample with skewing becoming more pronounced at the 11th grade, i.e. students entered program as defieient relative to national norms.

PART II - CONTENT

- Goals
- Objectives
- Articulation

Summation:

Visibility of educational goals is inadequate. Some inferences of goals can be made from the 1971-72 handbook, but students generally have not identified with these goals.

Specific mathematics concepts and skills are identified to the student by behavioral objectives written in learning activity packages. (Students often use packages without reference to objectives, however.)

Major concepts and skills contained in commercial text programs are evident in the course available to students. L.A.P. units carry content, fro general mathematics skills through second year algebra and trigonometry.

PART III - METHODOLOGY/ASSESSMENT

a.) Individualization

b.) Interpersonal Regard

c.) Creativity

d.) Group Activities

Summation: Of 38 criterion items related to "indicators of quality" within the desirable areas of INDIVIDUALIZATION, INTERPERSONAL REGARD, CREATIVITY, and GROUP ACTIVITIES:

1. individualization and interpersonal regard were identifi as major areas of strength.
2. creativity and group activities were identified as major areas in need of emphasis,
3. indicators related to observable "student role" items were consistently less evident than those related to "teacher role" items.

PART IV - ACCEPTANCE

- Faculty
- Student

Summation:

Information from the portion of the Purdue Teacher Opinionaire used indicates strong teacher acceptance of the program.

Approach tendencies are within the range of previous measures while avoidance tendencies are more pronounced. The higher incidence of avoidance tendencies appear to be due to 15% of the student population expressing strong avoidance feelings.

PART V - OUTPUT FACTORS

- Learner Exit Characteristics
- Systems Objectives

Summation: See results of TAP and Student Attitude Questionnaire.

LEARNER ENTRY CHARACTERISTICS

ANALYSIS OF MATHEMATICS ACHIEVEMENT TEST DATA
TEST DATA - FALL OF 1971

The test of Academic Progress has 51 items for each of the grade levels 9, 10, 11. Item difficulty indices for T.A.P. provide national norm information on PERCENT OF STUDENTS ANSWERING ITEM CORRECTLY. Table 1. identifies the number of items at each grade level for which the percent of students tested was either above, at, or below the national indices.

TABLE 1. NUMBER OF TEST ITEMS FOR WHICH THE PRECENTAGE OF STUDENTS GETTING THE ITEM CORRECT IS: 1.) MORE THAN FOUR PERCENTAGE POINTS ABOVE NATIONAL INDICES, 2.) WITHIN FOUR PERCENTAGE POINTS OF NATIONAL INDICES, AND 3.) MORE THAN FOUR PERCENTAGE POINTS BELOW NATIONAL INDICES.

Percent of students getting items correct is:	9th grade items	10th grade items	11th grade items
More than 4 percentage points above national indices	9	16	4
Within ± 4 percentage points of national indices	16	13	15
More than 4 percentage points below national indices	26	22	32

The Test of Academic Progress has 17 items which 9th, 10th, and 11th grade students respond to in common. Table 2. identifies the average change in the percent of students getting the same item correct between 9th & 10th year students and between 10th & 11th year students.

TABLE 2. AVERAGE CHANGE IN PERCENT OF STUDENTS GETTING SAME ITEMS CORRECT.

Grade levels compared	percentage gain
9th & 10th grade level students	9.17
10th & 11th grade level students	5.87

II

CONTENT

GOALS: How are educational goals of the instructional program kept visible?

Educational goals of the school are transmitted

1. to students at various assemblies, student advisor sessions, and direct communications in classroom
2. to parent groups
3. and to vistors

OBJECTIVES: How are learner objectives made available to students?

Specific learning objectives are indentifies in the various learning activity packages.

ARTICULATION: Are major concepts included in course offerings?

1. Basic skills of "general mathematics" are represented in LAPS. The scope of content was controlled by a matrix developed for that purpose.

LAPS for advanced courses were/are written to encompass content of district used texts.

Are basic skills (psychomotor, cognitive, and process skills) included in course offerings?

2. Different cognitive levels (to know about, to be able to use, and to create new methods or uses) are considered in LAP writing.

How do programs offered pick up student at point where he enters?

3. A student starts from where he left off in study pursuits if known. This can take place at any time during the year.

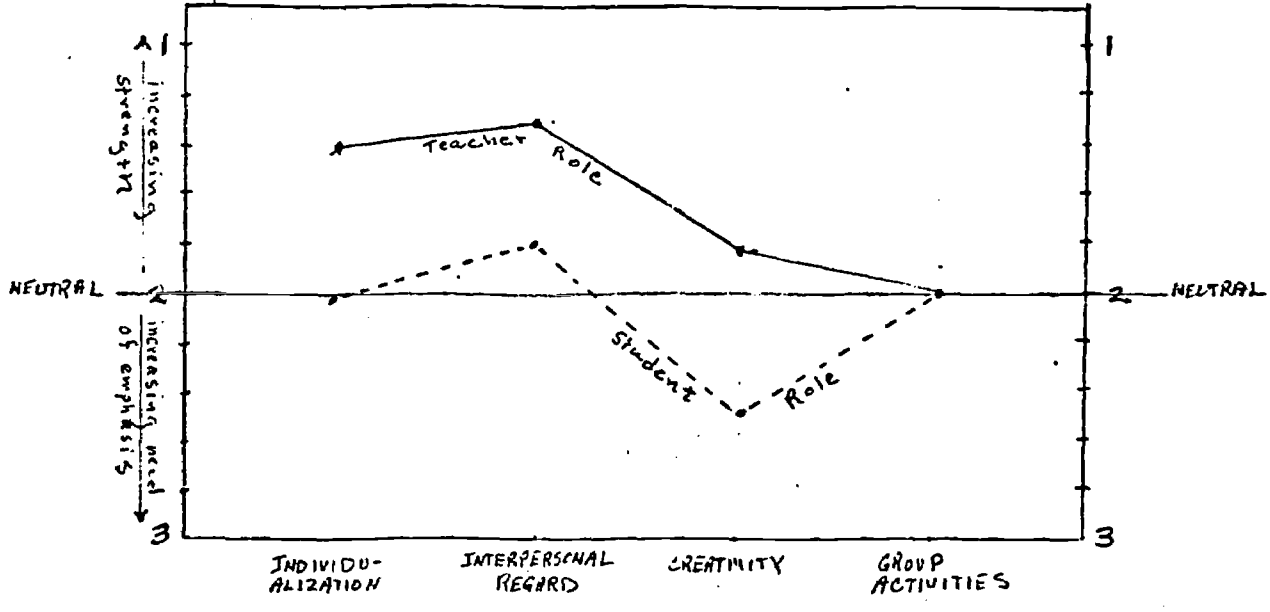
How do programs offered provide opportunity for cross-discipline learning activities?

4. Math and science are in same area with cross-discipline activities easily handled. Further, the weekly schedule format makes it convenient for such activities between other disciplines. Thus far shop, home ec., annual, and business students have come to math area for special purposes.

ANALYSIS OF CRITERION ITEMS RELATED TO INDICATORS OF QUALITY

Graph display A illustrates elements of teacher role (soild line) and student role (dashed line) indicators as indentifiable in two observation periods. Using a numerical scale of 1, 2, and 3, as strength, neutral or not observable, and in need of emphasis respectively and assessing instructional activity with items related to INDIVIDUALIZATION, INTERPERSONAL REGARD, CREATIVITY, and GROUP ACTIVITIES, three observers collaborated on weighted values for criterion items.

GRAPH A. TEACHER-STUDENT ROLES IN FOUR DESIRABLE AREAS



Although specific teacher roles and students roles were used to assess the instructional setting, the following check list of key concepts provides a sense of those elements that contribute to the graphic data.

Analysis of GROUP ACTIVITIES requires some explanation as it was found to be rather difficult to distinguish between elements of INTERPERSONAL REGARD and some aspects of GROUP ACTIVITY. It is felt that the key concepts of group activity are elements in need of emphasis, and perhaps are actually the greatest inadequacy of the program. The most striking impact felt by the evaluators was experienced upon the realization that no "group" activities are evident. Collections of students work together but on individual pursuits. Group goals, commitments, and problem solving are not in evidence, nor is a sense of belonging, or interdependency evident.

The concepts of GROUP ACTIVITY ought to be given more consideration in terms of impact on the learner.

INDICATORS OF QUALITY

Key Concepts of Individualization

1. **Knowledge of pupils.** The teachers know each pupil. This concept is broader than merely knowing an I.Q. or a reading score. It includes knowing the habits, interests, hobbies, family relationships and other aspects of the pupil's life outside the classroom.

2. **Physical facilities.** A variety of resources is available and in use. This covers every type of resource for in-class or out-of-class use, including programmed materials, audio-visual aids, as well as books, newspapers, magazines and specimen objects.

3. **Different tasks.** Different pupils work on different tasks, selected at least in part by the pupils themselves. Teachers make a variety of assignments designed to individual requirements for both in-class and out-of-class work.

4. **Participation.** Learning activities are sufficiently varied that all pupils are seen participating in some learning activity.

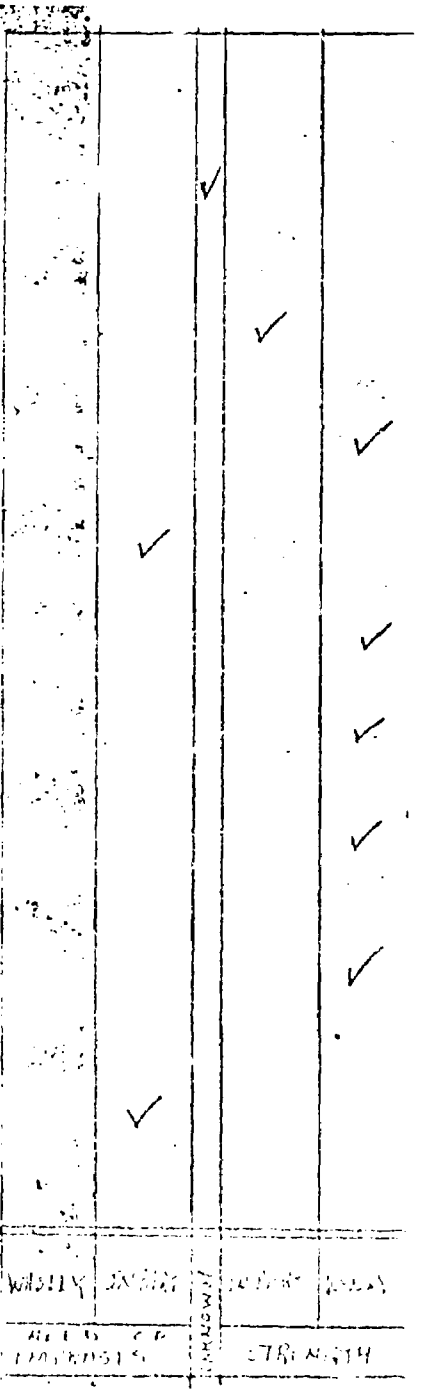
5. **Communication.** Instead of sending out oral messages to "whom it may concern", the teacher communicates individually as may be needed with pupils singly or in small groups.

6. **Modification of questioning** The teacher's questions vary in type and difficulty for different pupils, and in order to make sure each pupil understands.

7. **Complementary teacher-pupil roles.** The teacher adopts the role of a resource person and helper; the pupils contribute to the direction or content of the lesson and have the opportunity to lead and initiate change.

8. **Time for growth.** The time that pupils require to complete a given task or master a given concept or skill must, because of individual differences, vary greatly. The teacher therefore provides for both extra help and enrichment through planning or allowing the use of extra class time.

9. **Individual evaluation.** Instead of a fixed standard that all are expected to attain, or fall by the wayside, evaluation is judged as change or improvement at individual rates of growth and development.

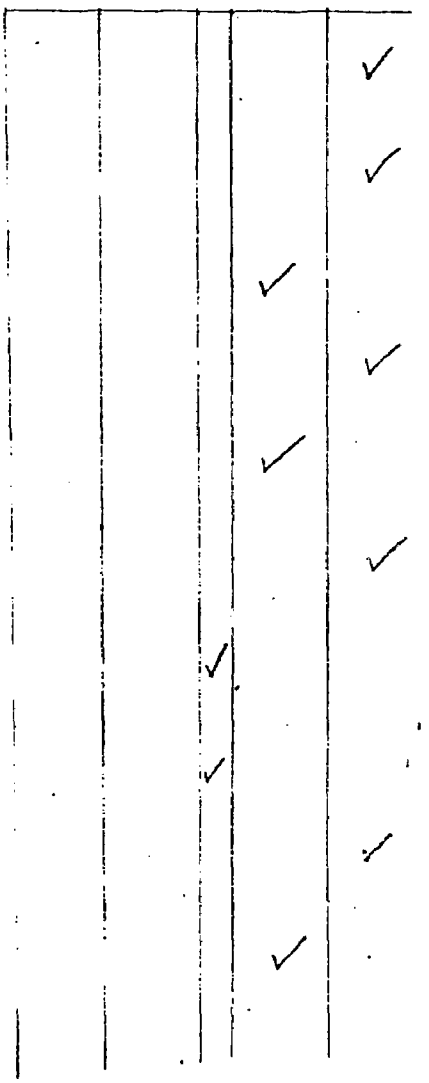


Authorities consulted on individualization of instruction: David W. Beggs, Knute O. Broady, Edward G. Buffie, Theodore Clymer, Walter W. Cook, John Dewey, Edgar S. Farley, Miriam L. Goldberg, Robert Havighurst, Joseph Justman, Nolan C. Kearney, Alice V. Keliher, Nancy Larrick, May Lazar, Murray J. Lee, A. Harry Passow, James B. Pugh, E. A. Reed and Fred Weaver.

THE ORIGIN OF INDICATORS OF QUALITY

The four characteristics of the educational setting that are examined in applying *Indicators of Quality* were determined by educational experts who were asked to decide upon what bases they would judge school quality. Since all four have to do with behavior of pupils and teachers, it is possible to watch the teaching-learning procedure and determine from the behavior observed whether the intent of one or another is present. But this necessitates knowing what specific aspects of behavior are critical to the realization of each criterion characteristic.

Key Concepts of Interpersonal Regard



10. Demeanor. The teacher is relaxed, good-natured, cheerful, courteous and, if using humor, always inoffensive, rather than yelling, shouting, frowning, glaring, insulting or sarcastic. Pupils reflect similar demeanor.

11. Patience. Both teacher and pupils take time to listen to and accept one another, rather than press, hurry, interrupt or give rigidly directive orders.

12. Pupil involvement. Pupils are eager, prompt, willing, show initiative or make voluntary contributions, instead of being apathetic, reluctant or slow to respond.

13. Physical movement is permissive, free, instead of submissive and dominated by the teacher.

14. Respect. There is mutually shared respect among pupils and teacher as evidenced by commending, accepting, helping, rather than rejecting or ignoring.

15. Error behavior. Pupils and teacher both openly and naturally accept and recognize errors of each other, rather than trying to cover up, losing face or showing guilt.

16. Pupil problems. Personal problems or handicaps are accepted with consideration, understanding and sympathy, rather than with ridicule or embarrassment.

17. Atmosphere of agreement. Pupils and teacher respect opinions of others and come to agreements without external coercion; conflict and hostility are not characteristic of problem solving.

18. Teacher-pupil identification. Teacher meets pupils on their level as one of them and is not withdrawn, aloof or superior.

19. Evaluation as encouragement. Positive, encouraging and supportive criticism, which pupils accept, is used rather than discouragement, disapproval, admonishment, blame or shame, which pupils ignore or reject.

Authorities consulted on Interpersonal Regard: Edmund J. Amidon, Paul S. Amidon, Harold H. Anderson, Norman D. Bowers, Helen M. Brewer, Joseph E. Brewer, David Cahoon, Morris Louis Cogan, Francis G. Cornell, David W. Darling, Ned Flanders, Ernest Hilgard, Earl C. Kelley, Kurt Lewin, Gordon F. Liddle, Carl M. Lindvall, Ronald Lippitt, Ardelle Llewellyn, Donald M. Medley, Harold E. Mitzel, Hugh Perkins, Mary F. Reed, Richard E. Ripple, Seymour Sarason, Joe F. Saupe, Pauline Sears, B. F. Skinner, Robert S. Soar, Charles E. Stewart, David E. Templeton, Herbert Thelen, Ralph K. White, Fred T. Wilhelms and John Withall.

An extensive search of the literature was made — books, pamphlets, periodicals, anthologies, research studies proposed, written or reported by authorities in each of the four areas. What do the experts, as a group, say must be present in the classroom setting in order for *individualization of instruction* to be realized? What must be present for *interpersonal regard*? What for *creativity*, for *group activity*? Conversely, what in the classroom setting works against the realization of each?

Certain key concepts were found to define the content of the four criteria. Nine key concepts of *individualization* were discerned, ten key concepts of *interpersonal regard*, nine key concepts of *creativity* and twelve key concepts of *group activity* — forty key concepts in all.

Key Concepts of Creativity

20. Time for thinking. Time is allowed to think and discover, play with ideas, manipulate objects, experiment, without pressure to get "*the* answer" or get it "right".

21. Abundance of materials. Pupils have the stimulation of materials and other resources in great richness and variety.

22. Skills of thinking. A variety of skills used in creative thinking is practiced: inquiring, searching, manipulating, questioning, abstracting, analyzing, summarizing, outlining, generalizing, evaluating and the like.

23. Testing ideas. The examination, comparison and testing of divergent ideas are encouraged, as opposed to referring to authority.

24. Unusual ideas. Unusual ideas are entertained without anxiety or tension, and unusual questions are considered with respect.

25. Question and answer technique. The teacher uses open-ended questions rather than questions with a "right" answer, presents unsolved problems rather than a lecture with "correct" information filled in; pupils test and challenge rather than attempt to key in on the wanted correct answer, and are encouraged to consider questions for which they do not have the answer.

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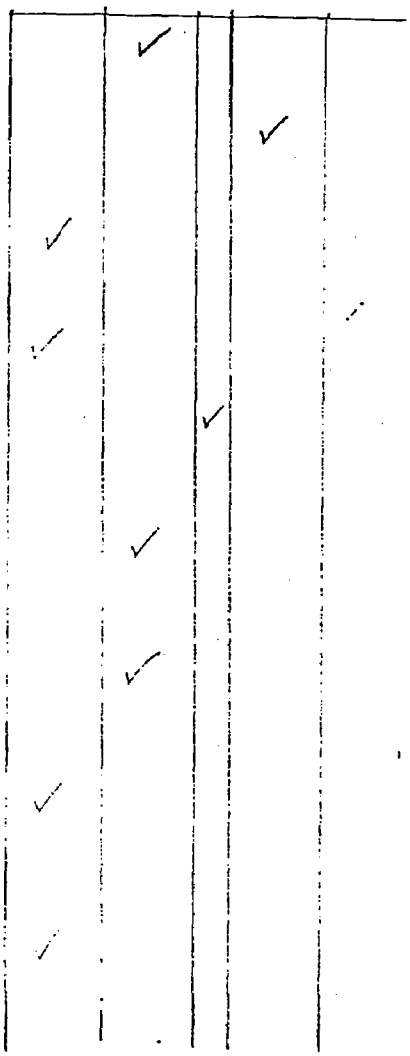

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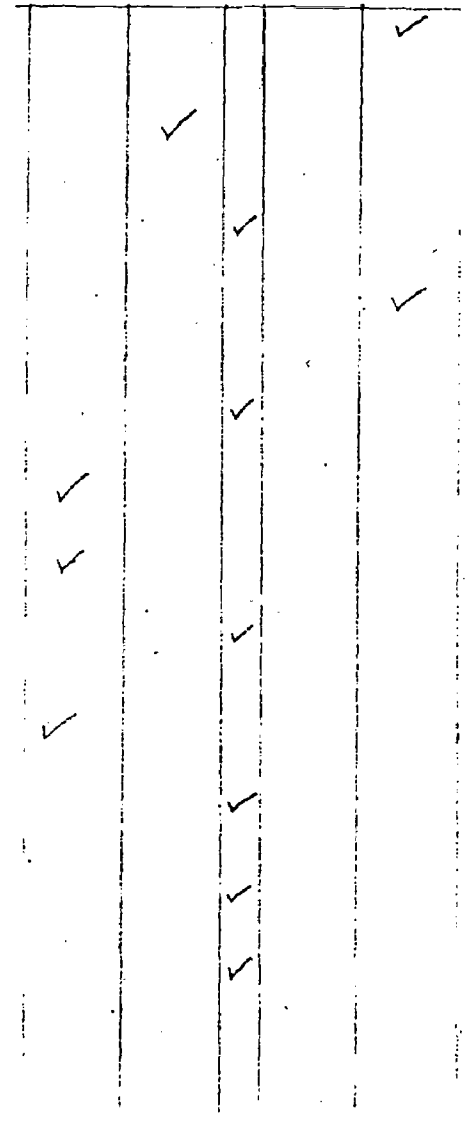
Key Concepts of Group Activity



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31. Decision-making. The group shares in decision making, rather than having decisions made by the teacher and the group told what to do.

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36. Group goals. Goals of the group are accepted by all members of the group, instead of factionalism that divides the efforts and purposes of the group.

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ANALYSIS OF STUDENT ACCEPTANCE - MATHEMATICS PROGRAM
AVOIDANCE - APPROACH TENDENCIES, SPRING 1972

Assuming that interests, attitudes, appreciations, and values are apt to contribute neavily to later understandings and applications of basic mathematics skills, it becomes a major goal of a program to establish specific affective instructional goals. An avoidance-approach tendency survey purports to "sense" affective impacts by a count of a student's tendency to aviod or approach elements of the program and subject.

Graph display C illustrates, by heavy soild line, the avoidance-approach measures of 9, 10, and 11 math students. The cross-hatched region identifies positions of prevoius measures using a similar survey instrument.

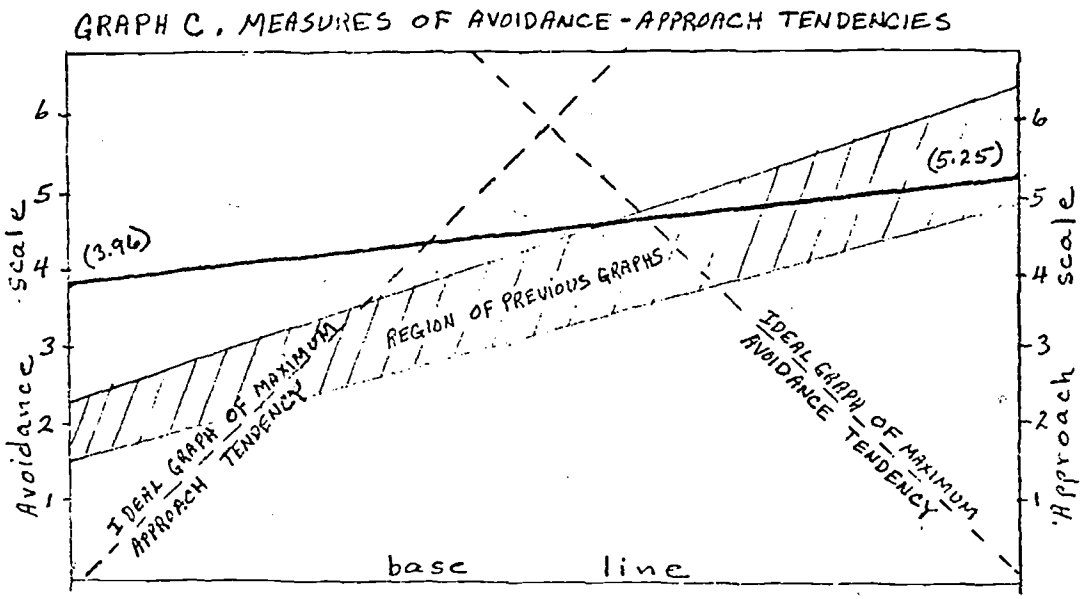


Table 5. identifies the percentages of students demonstrating various modes of avoidance-approach tendencies.

TABLE 5.

Tendency Mode	No. Students	Percentage
Strong approach tendency (choosing 75-100% approach indicators)	37	23%
Non-significant approach measures (choosing 0-25% approach indicators)	58	37%
Strong avoidance tendency (choosing 75-100% avoidance indicators)	24	15%
Non-significant avoidance measures (choosing 0-25%) avoidance measures	104	66%

I. Observable Characteristics During Operations

Personalization of Learning - percentage of instructional groups (teacher units) where:

A. Students (3-12) have available, in writing, the instructional objectives toward which they are working _____

B. Each student moves from a given topic area to another on the basis of his performance rather than on the basis of time invested _____

C. The progress of each student is measured by his performance with his specific objectives rather than with the performance of others _____

D. Students have opportunities to make choices and exert initiative in carrying out alternate learning activities _____

II. Measurable Outcomes of Student Performances

Basic Skills - percentages of student performances on district-wide standardized tests:

A. 2nd-year students above 50th percentile _____
B. 2nd-year students above 25th percentile _____
C. 5th-year students above 50th percentile _____
D. 5th-year students above 25th percentile _____
E. 8th-year students above 50th percentile _____
F. 8th-year students above 25th percentile _____
G. 11th-year students above 50th percentile _____
H. 11th-year students above 25th percentile _____

Special & Saleable Skills - percentage of student population (9-12) that:

A. Completes rigorous mathematics sequence offered _____

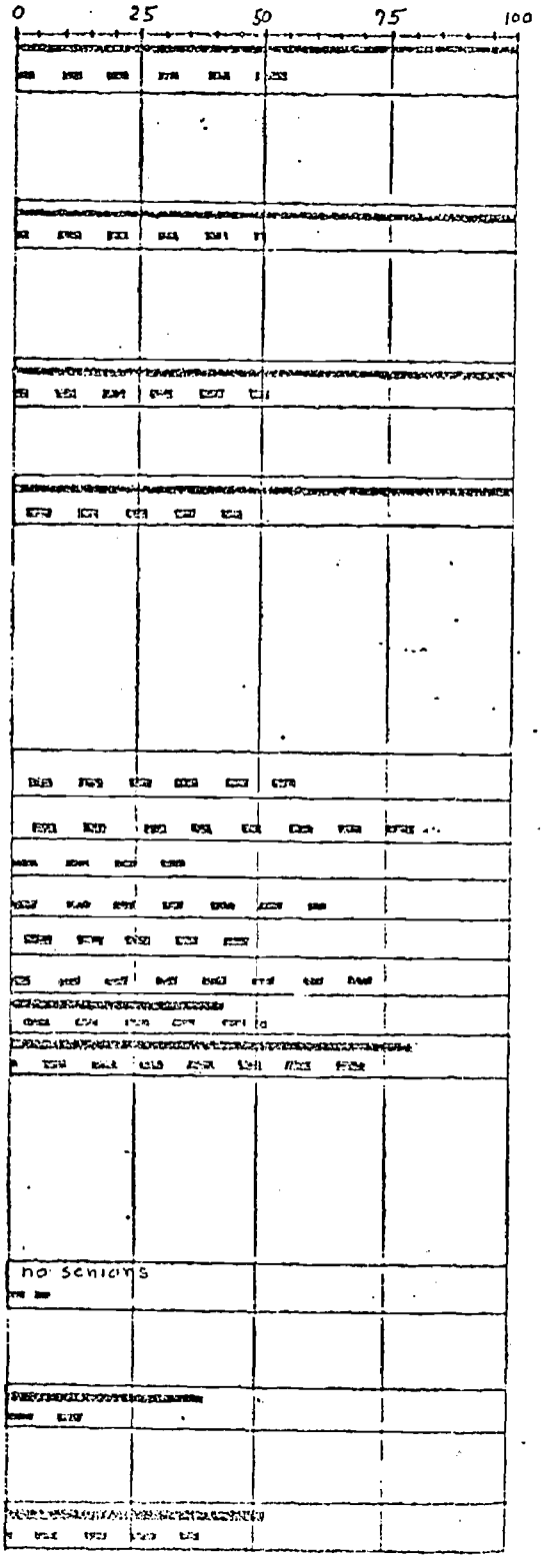
B. Pursues specialized offerings associated with vocational or apprentice programs _____

C. Continues mathematics studies in high school, (10th, 11th, and 12th year students taking a math course) _____

SCHOOL II-1 Decatur

DISTRICT COMPOSITE

PERCENTAGE



OUTLINE AND SUMMARY

Program: Science

Evaluators: Chisholm, Ramsey, Rowlands

Date(s): April 12 and 13, 1972

School: Decatur High School

PART I - INPUT FACTORS

- Facilities
- Material, Equipment and Supplies
- Learner Entry Characteristics

Summation:

The facilities, consumables, and equipment appear adequate but not stimulative. An analysis of achievement scores (TAP) indicates an incoming student population skewed on the lower end of a normal distribution. There is preliminary evidence, to be substantiated later by the school, for a similar skewing of mental maturity.

PART II - CONTENT

- Goals
- Objectives
- Articulation

Summation:

Educational goals are not visible. Specific learning objectives are for the most part available but are not serving as organizers of work. Revision of the biology objective is badly needed. Major concepts as contained in current text programs are dealt with in the LAP units.

PART III - METHODOLOGY/ASSESSMENT

a.) Individualization

b.) Interpersonal Regard

c.) Creativity

d.) Group Activities

Summation:

Individualization and inter-personal regard are strengths of the program. Group activity is the greatest inadequacy of the program. Students sit together, have freedom of movement, and communicate freely but do not establish or work toward group goals, practice or cultivate group problem solving abilities.

PART IV - ACCEPTANCE

- Faculty
- Student

Summation:

Information from the portion of the Purdue Teacher Opionnaire used indicates a strong teacher morale. Student acceptance falls within the range of previous measures.

PART V - OUTPUT FACTORS

- Learner Exit Characteristics
- Systems Objectives

Summation:

On the basis of a 17 percentile composite increase (41-58) TAP scores during a five-month span (12/71 to 5/71), it appears that Decatur is successful in developing science cognitive ability.

LEARNER ENTRY CHARACTERISTICS

The Test of Academic Progress (TAP) is the district adopted achievement test for use in the secondary schools. It provides national norms for students at grade levels 9, 10, and 11. In Table I, the percentile rank of the science system averages for Decatur are displayed. Along side the results from the fall administration (12/7) of the TAP test is the corresponding score produced in the spring (5/72).

TABLE I

	Fall Percentile Score	Spring Percentile Score
9th grade	40	51
10th grade	37	58
11th grade	47	65
Composite	41.3	58

N Spring = 292

N Fall = 339

In Table 2 the percentage of students scoring within each of the four percentile quartiles on the science portion of the TAP test is displayed.

TABLE 2

	9th Grade		10th Grade		11th Grade	
	Fall	Spring	Fall	Spring	Fall	Spring
First Quartile 0 - 25	30.7%	25.2%	30.5%	23.4%	28.0	17.6%
Second Quartile 26 - 50	26.9%	28.7%	23.6%	20.8%	33.6%	24.7%
Third Quartile 51 - 75	24.0%	26.4%	22.9%	31.3%	18.6%	27.0%
Fourth Quartile 76 - 100	18.2%	19.5%	22.9%	24.3%	19.6%	30.5%

II

CONTENT

GOALS: How are educational goals of the instructional program kept visible?

Educational goals are available but obscure in the original Project 80 proposals. Educational goals particular to the physics program are stated but not circulated. It appears that parents, new students, new teachers, and visitors could not find the goals of Decatur readily available and would have to depend on oral communication or observation.

OBJECTIVES: How are learner objectives made available to students?

Specific objectives are identified in the Learning Activity Packages (LAP'S). These objectives are not generally being used by students as organizers of their work due at least in part to their lack of clarity in objectives, purposes, and main ideas.

ARTICULATION:

1. Are major concepts included in course offerings?

   In light of student body and staff size, yes. With future growth, consideration may be given to environmental studies (particularly in areas where data and observation can be completed in the community), technology/social studies, and a broader inclusion of a process orientation to the existing science skills LAP curriculum.

2. Are basic skills (psychomotor, cognitive, and process skills) included in course offerings?

   Due to the above-mentioned lack of clarity in objectives, an attempt to analyze these factors on a matrix was futile.

3. How do programs offered pick up student at point where he enters?

   It appears that in a given subject area no diagnostic tools are being used to determine entry level for students. Teacher discretion may be being used. The design of the Decatur program would facilitate the development of such an instrument.

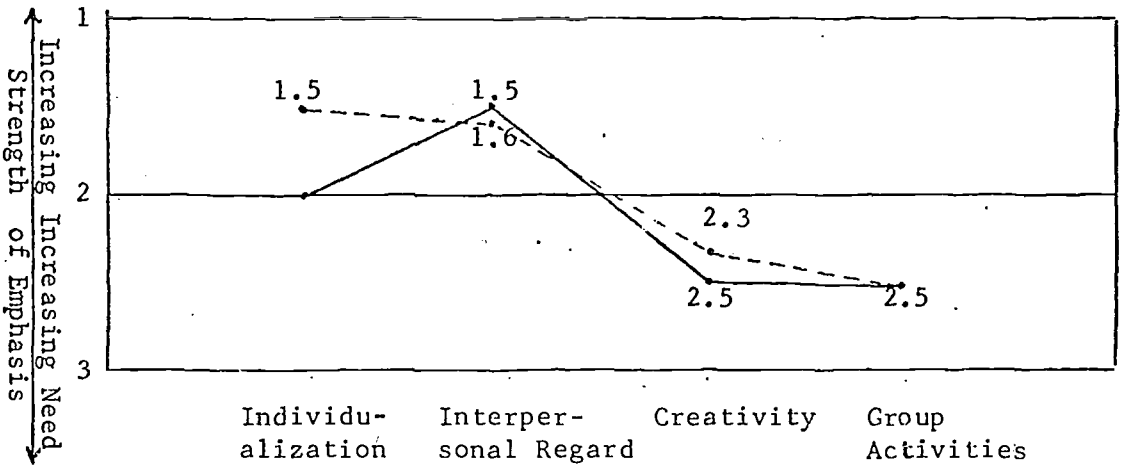
4. How do programs offered provide opportunity for cross-discipline learning activities?

   The shared facilities of math/science and the housing of various science offerings in one area encourage cross fertilization of studies.

ANALYSIS OF CRITERION ITEMS RELATED TO INDICATORS OF QUALITY

Graph display "A" illustrates elements of teacher role (solid line) and student role (dashed line) indicators as indentifiable in two observation periods. Using a numerical scale of 1, 2, and 3, as strength, neutral (or not observable), and in need of emphasis respectively and assessing instructional activity with items related to INDIVIDUALIZATION, INTERPERSONAL REGARD, CREATIVITY, AND GROUP ACTIVITIES, three observers collaborated on weighted values for criterion items.

TEACHER-STUDENT ROLES IN FOUR AREAS



------Teacher

_____Student

Although specific teacher roles and students' roles were used to assess the instructional setting, the following check list of key concepts provides a sense of those elements that contribute to the graphic data.

Analysis of GROUP ACTIVITIES requires some explanation as it was found to be rather difficult to distinguish between elements of INTERPERSONAL REGARD and some aspects of GROUP ACTIVITY. It is felt that the key concepts of group activity are elements in need of emphasis, and perhaps are actually the greatest inadequacy of the program. The most striking impact felt by the evaluators was experienced upon the realization that no "group" activities are evident. Collections of students work together but on individual pursuits. Group goals, commitments, and problem solving are not in evidence, nor is a sense of belonging, or interdependency evident.

The concepts of GROUP ACTIVITY ought to be given more consideration in terms of impact on the learner.

METHODOLOGY / ASSESSMENT

OBSERVATION CRITERIA *	Area of Strength	Observation period did not present opportunity to assess items	Area in need of emphasis
INVOLVEMENT:			
1. Students are eager, prompt, show initiative and make contributions voluntarily.....	x		
b 2. Teacher(s) introduces an activity with enthusiasm, offers examples of student roles and invites student suggestions.....	Teacher doesn't introduce lesson but is generally enthusiastic.		x
3. Students are skillful at using a variety of resources and participating in a different kinds of tasks.....	x		
4. Teacher(s) suggests a variety of tasks and resources to meet individual requirements of students.....	Emphasis in chapter readings x		
5. Students communicate with each other and are free to seek assistance among d their group mates.....	x		
6. Teacher(s) communicates quietly and individually, as may be needed, with students singly or in small groups without interrupting others.....	x		
7. Students are pleasant, courteous and respectful toward each other and b toward the teacher(s).....	x		
8. Teacher(s) maintains atmosphere of respect and relaxed pleasantness toward others, as evidenced by commending, accepting, and helping.....	x		
9. Students have developed skill in working together on problems of various kinds d rather than preferring self-centered isolation at all times.....	Work done together is on a superficial level.		x
10. Teacher(s) maintains a principle objective to cultivate and facilitate social skills, cooperation, idea exchange, and shared problem solving among students.....	Students are together and communicating. Idea exchange with a science focus, problem solving, and cultivation of social skills is not evident.		x

OBSERVATION CRITERIA *	Area of Strength	Observation period did not present opportunity to assess items.	Area in need of emphasis
11. d Students share in the rules or mechanisms for arriving at group decisions rather than submitting to the force of the teacher's opinion.....	☐	☒	☐
12. Teacher(s) encourages full participation of the members of the class in arriving at group decisions.....	☐	☒	☐
13. b Students resolve conflict themselves within the group whenever it arises rather than depending upon the teacher to police individual discipline.....	☐	☒	☐
14. Teacher(s) permits students the opportunity to resolve conflict rather than stepping in immediately to police all difficulties.....	☐	☒	☐
15. a Students contribute to the direction and content of the lesson and have the opportunity to lead and initiate change by actively participating in planning learning goals, determining tasks that must be done, and setting time frames for completion.....	☒	☐	☐
16. Teacher(s) is a resource person and helper available to individuals and groups whose needs and requests determine largely what the teacher does--rather than remaining at the front of the class all the time with little contact with individual students.....	☒	☐	☐
17. a Students take advantage of special times for consultation, doing independent work, or using special facilities of the school rather than wasting unstructured time periods.....	☐	☐	☒
18. Teacher(s) organizes time in such a way so as to allow those who need more of it for mastery of a concept or skill to have it.....	☒	☐	☐

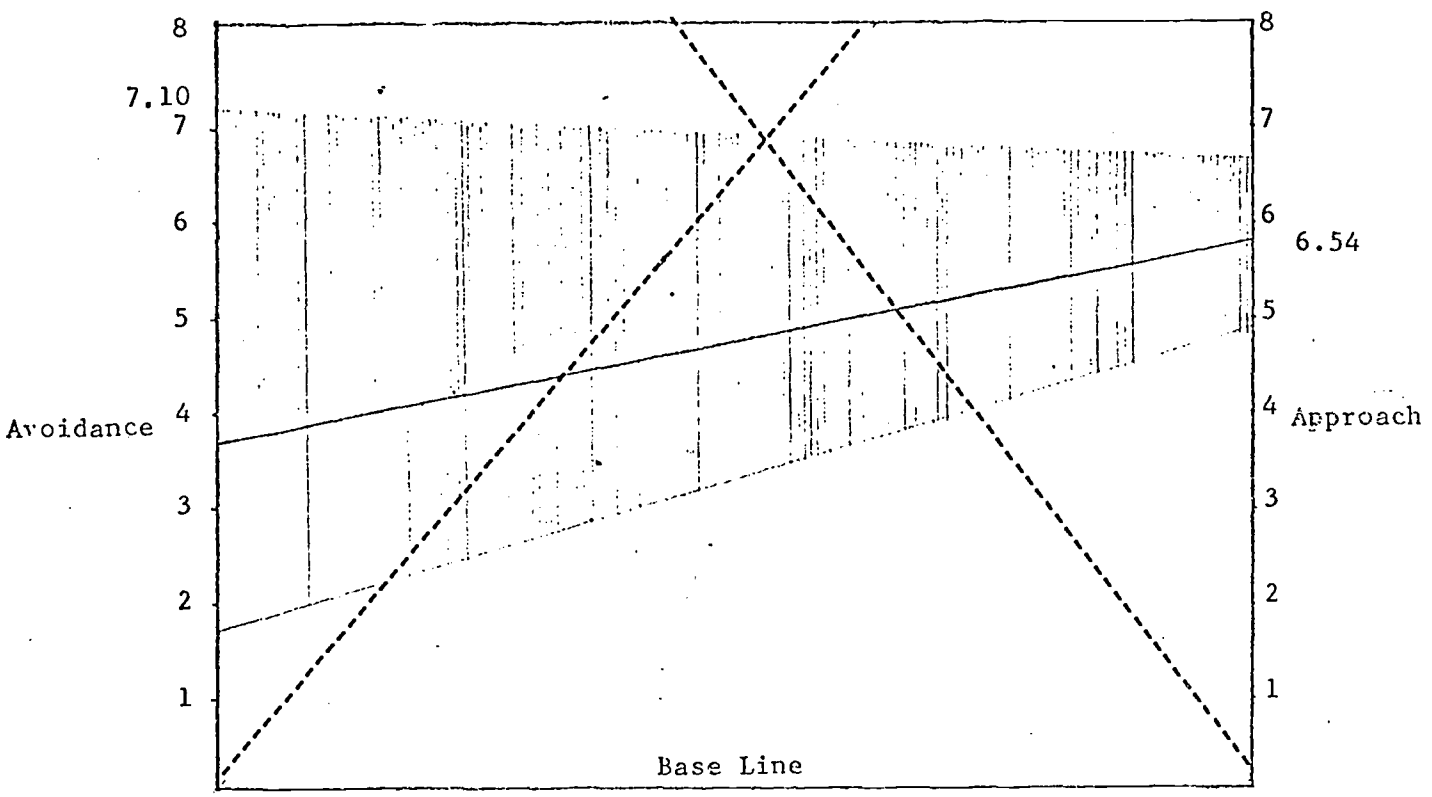
OBSERVATION CRITERIA *	Area of Strength	Observation period did not present opportunity to assess items.	Area in need of emphasis
PERSONAL REGARD:			
19. Students are skillful in responding to open ended questions rather than attempting to anticipate the "correct" answer that the teacher has in mind.....	☐	☐	☒
20. Teacher(s) uses open ended questions rather than questions implying a "right" answer.....	Some evidence of open "endedness" but in balance, further refinement is needed ☐	☐	☒
21. Students show willingness and confidence in speculating, guessing, estimating, and deducing rather than trying to guess a "right" answer.....	☐	☐	☒
22. Teacher(s) provides opportunity for speculating, guessing, supposing, hypothesizing, forecasting and predicting rather than handing out "right" answer in order to save time.....	Similar to #20 ☐	☐	☒
23. Students take time to think about questions and play with ideas rather than becoming impatient about getting to the "answer."	☐	☐	☒
24. Teacher(s) allows time to think and discover, play with ideas, manipulate objects, and experiment rather than pressing for a quick response.....	☒	☐	☐
25. Students have the stimulation of equipment, materials, and other resources that facilitate thinking rather than being required to deal with topics only in terms of verbal study.....	Needs a more visually stimulating room (projects, wall charts and pictures, etc.). ☒	☐	☐
26. Teacher(s) manages equipment and material or other resources so that they are easily accessible for student use.....	☒	☐	☐
27. Students take responsibility for self-initiated learning and extending the scope of a topic rather than doing only what the teacher proposes.....	☐	☐	☒

OBSERVATION CRITERIA *	Area of Strength	Observation period did not present opportunity to assess items.	Area in need of emphasis
28. Teacher(s) encourages students to go beyond the lesson plan, assignment or topic.....	☐	☐	☒
29. b Students take time to listen to each other and accept one another's differences of temperament and thought processes rather than interrupt, press each other and show impatience.....	☐	☒	☐
30. Teacher(s) takes time to listen, let things follow a natural course rather than hurry and pressure the group with rigid directives.....	☒	☐	☐
ASSESSMENT:			
31. b Students accept constructive criticism willingly rather than ignore criticism or become aggressive.....	☐	☒	☐
32. Teacher(s) judges student work in terms of positive, encouraging, supportive criticism rather than using discouragement, disapproval, and admonishment.....	☐	☒	☐
33. a Student actively contributes to assessing where he is, where he should strive to be and how well he is doing in getting there.....	Aside from a choice to attend/not attend, work/not work. ☐	☐	☒
34. Teacher(s) judges each student in terms of where he is, how he sees things, and how well he is learning (changing from present condition) rather than using a fixed standard that all are expected to attain.....	☐	☐	☒
35. c Students seek out and expect consultation about their work rather than waiting to be graded at designated "end points "	☐	☒	☐

OBSERVATION CRITERIA *	Area of Strength	Observation period did not present opportunity to assess items	Area in need of emphasis
36. Teacher(s) encourages students to make judgments about their own work rather than making judgments without involving the student.....	[ ]	[ ]	[x]
37. b Students openly admit errors and recognize mistakes of teacher as natural and human rather than trying to cover up, make fun, or lose face.....	[x]	[ ]	[ ]
38. Teacher(s) manages class with a climate of intellectual honesty rather than cultivating a lack of tolerance for error or tendency to cover up rather than be wrong.....	[x]	[ ]	[ ]

* Items similar to selected parts of "Indicators of Quality," Institute of Administrative Research, Teachers College, Columbia University.

ANALYSIS OF STUDENT ACCEPTANCE--SCIENCE PROGRAM AT DECATUR HIGH SCHOOL
SPRING 1972



Mean of approach 5.77

Mean of avoidance 3.72

Key: ———— Approach-avoidance of 9th, 10th, and 11th grade students

Positions of previous science measures using survey instrument

---------- Maximum potential approach or avoidance

ANALYSIS OF AVOIDANCE-APPROACH DISTRIBUTIONS

This table identifies the strength of individual approach or avoidance tendencies as determined by percentage of approach or avoidance indicators chosen by individual respondents.

	No. Students	Percentage
Strong Approach Tendency (As indicated by choosing 76-100% approach indicators)	20	27%
Moderate Approach Tendency 51-75% approach indicators	29	39%
Strong Avoidance Tendency 76-100%	9	12%
Moderate Avoidance Tendency	19	25%
TOTAL	75	

SOCIAL STUDIES

LARRY M. STRICKLAND
Evaluation begun - May 4, 1972

EVALUATION CHECKLIST

DECATUR HIGH

Rating Guidelines:

0 Indicates no evidence.
1 Indicates some evidence but extremely low visibility.
2 Indicates obvious effort but room for considerable improvement.
3 Indicates being accomplished but needs improved quality and/or frequency.
4 Indicates comes close to standards but can be improved.
5 Indicates done frequently and appropriately.

NOTE: Comments should attempt to specify exact weakness and/or strength.

0	1	2	3	4	5	
	X					1.1 Are students involved in the formulation of goals, the selection of activities, and the assessment of curriculum outcomes?

Have not looked at overall goals with students -- have looked at individual's goals. Need greater student and perhaps parent involvement in goal formulation.

				X		1.2 Do the school and its teachers make steady effort, through regularized channels and practices, to identify areas of concern to students?

					X	1.3 Do students have choices within programs?

				X		1.4 Do all students have ample opportunity for social studies education at all grade levels?

Four is assigned here because we wish to define social studies education in as broad a manner as possible. Therefore, some elements such as community involvement, etc., need to be strengthened.

0 1 2 3 4 5

				X		2.1 Does the program focus on the social world as it actually is, i.e., unemployment, poverty, social structure, urban problems?
			X			2.2 Does the program emphasize pervasive and enduring social problems?
				X		2.3 Does the program include analysis and attempts to formulate potential resolutions of present and controversial problems such as racism and war?
			X			2.4 Does the program provide intensive and recurrent study of cultural, racial, religious, and ethnic groups?

I'm sure the religious element needs additional attention.

		X				2.5 Does the program offer opportunities to meet and work with members of racial and ethnic groups other than their own?
	X					2.6 Does the program build upon the realities of the immediate school community?
				X		2.7 Is participation both in school and out considered part of the program?

More than most schools.

0 1 2 3 4 5

					X

3.1 Does the program emphasize valid concepts, principles, and theories in the social sciences?

					X

3.2 Does the program develop proficiency in methods of inquiry in the social sciences and in techniques for processing social data?

3.3 Does the program develop students' ability to distinguish among empirical, logical, definitional, and normative propositions and problems?

Change to critical thinking.

				X	

3.4 Does the program draw upon all of the social sciences and the history of the United States and the Western and non-Western worlds?

Not in depth in all areas -- need additional area studies.

					X

3.5 Does the program draw from what is appropriate in other related fields such as psychology, law, communications, and the humanities?

			X		

3.6 Does the program represent some balance between the immediate social environment of students and the larger social world?

3.7 Does the program include the study of man's achievements and those policies contrary to present national goals?

OMIT

0	1	2	3	4	5	
					X	4.1 Are objectives carefully selected and formulated?
					X	4.2 Are knowledge, abilities, valuing, and social participation all represented in the objectives of the program?
					X	4.3 Are general statements of goals translated into specific objectives conceived in terms of behavior and content?
					X	4.4 Are classroom instruction and materials based upon clearly stated objectives?
					X	4.5 Does classroom instruction enable students to see their goals clearly in brief instructional sequences and lengthy units of study?
					X	4.6 Are objectives reconsidered and revised periodically?
					X	5.1 Do students have a wide and rich range of learning activities appropriate to the objectives of their program?

0	1	2	3	4	5	
				X		5.2 Do activities include formulating hypotheses and testing them by gathering and analyzing data?

Materials are needed which lend themselves to this.

			X			5.3 Do activities include the processes of making decisions about socio-civic affairs?
			X			5.4 Do activities involve students in their communities?
					X	5.5 Are learning activities sufficiently varied and flexible?
		X				5.6 Do students perceive their teachers as fellow inquirers?
					X	5.7 Are activities carried on in a climate which supports students' self-respect and opens opportunities to all?
				X		6.1 Does the program have a wealth of appropriate instructional resources?

0	1	2	3	4	5
			X		

6.2 Do printed materials accommodate a wide range of reading abilities and interests, learning activities, and sources?

Not enough for slower readers.

0	1	2	3	4	5
					X

6.3 Is a variety of media available for learning through many senses?

0	1	2	3	4	5
				X	

6.4 Do classrooms draw upon the contributions of many kinds of resource persons and organizations representing many points of view?

Have had in many community speakers -- but not many on controversial issues.

0	1	2	3	4	5
				X	

6.5 Do activities use the school and community as a learning laboratory?

0	1	2	3	4	5
				X	

6.6 Does the program have available many kinds of work space?

Need more specialized kinds of spaces.

0	1	2	3	4	5
			X		

6.7 Does the program allow and teach students to share their experiences?

Need more kinds of seminars and humanities kind of classes.

0	1	2	3	4	5
			X		

7.1 Does the program teach students to apply social studies concepts into their lives?

Making great effort. Authors aren't writing with personal application in mind.

0	1	2	3	4	5	
				X		7.2 Are learning experiences organized in such fashion that students learn how to continue to learn?
				X		7.3 Does the program enable students to relate their experiences in social studies to other areas of study?
					X	7.4 Does the formal pattern of the program offer choice and flexibility?
					X	8.1 Is evaluation based primarily on the school's own statements of objectives?
			X			8.2 Does assessment include progress in knowledge, abilities, valuing, and participation?

Need to develop evaluation techniques in non-cognitive areas.

				X		8.3 Does evaluation data come from many sources, inside and outside the classroom?

Outside sources are being used. Outside sources not able yet to break out of framework that evaluates "Decatur" instead of program objectives.

				X		8.4 Are evaluation procedures regular, comprehensive, and continuous?

Not comprehensive see 8.3 -- not yet dealing with program objectives.

					X	8.5 Are evaluation data used for planning curricular improvement?

What Decatur receives they use.

0	1	2	3	4	5
					X

8.6 Do evaluation data offer students help in the course of learning?

0	1	2	3	4	5
					X

8.7 Are both students and teachers involved in the process of evaluation?

0	1	2	3	4	5
					X

8.8 Is regular re-examination of basic curricular goals an integral part of the evaluation?

0	1	2	3	4	5
				X	

9.1 Does the school provide appropriate materials, time, and facilities for social studies education?

0	1	2	3	4	5
		X			

9.2 Do teachers try out and adapt for their own students promising innovations?

Students passive. Have not become involved.

0	1	2	3	4	5
			X		

9.3 Are the basic purposes of social studies education as clearly related to the needs of the immediate community as to those of society at large?

Are moving in that direction, but faculty feels they haven't had time to develop techniques to pursue that kind of learning. Also materials most readily available are directed at national and international themes. Also, feel political climate not conducive.

0	1	2	3	4	5
					X

9.4 Do teachers participate regularly in active social studies curriculum committees with both decision-making and advisory responsibilities?

0	1	2	3	4	5
				X	

9.5 Do teachers participate regularly in activities which foster their competence in social studies education?

					X

9.6 Do teachers have social studies consultants available for help?

		X			

9.7 Can teachers and schools rely upon a district-wide policy statement on academic freedom and professional responsibility?

4/72

E. By May 15, 1972, a series of tests will be completed to determine the effects of the program on —

1) Achievement (equal or better expected)

2) Attitudes (improvement expected)

* TEST OF ACADEMIC PROGRESS - TAP

The TAP has been given in the Spring to the 11th grade classes in all high schools in Federal Way for several years. At Decatur we gave the TAP in the Fall of 1971 to establish a starting point for all 9th, 10th, and 11th grade students entering the new program. The test was given again in the Spring to measure growth during the first year and also to be able to compare achievement data with 11th grade students in other schools.

INTERPRETATION OF TAP RESULTS

The two types of scores which are provided with TAP are within-grade percentile ranks and standard scores.

The standard score scale for TAP is a continuous scale which, for grades 9 through 12, extends from a low of approximately 15 to a high of approximately 85. The scale is based on the distribution of scores earned by grade 11 students. The distribution of scores for these students was normalized, the median score (the 50th percentile) was assigned a value of 50, and the standard deviation was set at 10 points. Standard scores for the grade 9, and 10 tests were then obtained by the equi-percentile method.

The standard score scale was developed so that scores made on the four different grade-level tests could be compared meaningfully. The scale is continuous through grades 9, 10, 11, and 12 and all units on the scale represent approximately the same increment of achievement. A given standard score represents the same level of progress, regardless of the grade level of the student earning the score. These characteristics of the

scale make possible the study of student progress through the four grades of high school.

Regardless of a student's absolute level of achievement an important measure of his success in high school is the progress he makes in each academic area. The average increase per year varies somewhat among tests, and among different levels of achievement within a given test, but an increase of from two to four points should be regarded as within the normal range of growth during the year.

Regardless of the ways in which results on standardized tests are used in school, all interpretations rest basically on three types of information:

1) How does a student's performance compare with that of other students in his grade?
2) Which are the student's relatively strong and weak areas?
3) Has the student made reasonable progress during the year?

All uses of test data are based on the answers to these questions or logical extensions of them. Percentile ranks and standard scores provide the information needed to study these or virtually any other questions that may arise during test interpretation.

Another question must also be asked:

4) How did 11th grade students at Decatur achieve in comparison to 11th graders in the other high schools in Federal Way?

The chart on the following page shows a comparison of Fall and Spring test scores and of 11th grade in the three Federal Way high schools.

AVERAGE STANDARD SCORES BY CLASS

		SOCIAL STUDIES			COMPOSITION			SCIENCE		
		Fall	Spring	Growth	Fall	Spring	Growth	Fall	Spring	Growth
Decatur	9th	40.1	43.2	3.1	38.2	41.9	3.7	45.2	47.5	2.3
	10th	44.7	46.9	2.2	42.6	44.7	2.1	47.3	50.1	2.8
	11th	47.3	49.8	2.5	42.8	46.2	3.4	49.2	53.3	4.1
H.S. #1 - 11th			52.2			49.6			53.0	
H.S. #2 - 11th			51.0			47.7			50.9	

		READING			MATH			LITERATURE		
		Fall	Spring	Growth	Fall	Spring	Growth	Fall	Spring	Growth
Decatur	9th	40.8	44.5	3.7	42.0	45.1	3.1	39.9	42.3	2.4
	10th	43.8	47.3	3.5	45.2	47.6	2.4	44.6	46.8	2.2
	11th	45.6	49.1	3.5	48.5	50.5	2.0	43.4	47.6	4.2
H.S. #1 - 11th			50.8			52.3			49.9	
H.S. #2 - 11th			50.1			50.5			48.8	

		COMPOSITE		
Decatur	9th	41.1	44.2	3.1
	10th	44.8	47.3	2.5
	11th	46.3	49.5	3.2
H.S. #1 - 11th			51.4	
H.S. #2 - 11th			49.8	

SUMMARY

How then can the data available be interpreted to answer these four questions:

As stated before, the median standard score expected for the 11th grade should be 50.0. If a student's normal range of growth is from two to four points per year, then the median standard score expected for the 9th grade should be 44.0 and for the 10th grade 47.0.

1) How does a student's performance compare with that of other students in his grade?

9th Grade

The average score of all 9th grade students at Decatur was above the expected score of 44.0 in science, reading, math, and the composite for the total test. Composition, literature, and social studies were slightly below that expected.

10th Grade

The average score of all 10tn grade students was above the expected score of 47.0 in science, reading, math, and the composite for the total test. Social studies and literature were slightly below that expected. Performance in composition was below what is expected of 10th graders. However, these students were far behind in composition when they came to us at the first of the year and it would be unrealistic to expect that they could "catch up" in one year.

11th Grade

The average score of all 11th grade students was above the expected score of 50.0 in science and math. Social studies, reading, and the composite for the total test were slightly below that expected. Composition and literature scores remained below the expected level. Growth in these areas during the year, however, was encouraging.

2) Which are the students' relatively strong and weak areas?

9th Grade

Math and science are our students' strong areas. Composition and literature, while not significantly low enough to be called a weakness, are areas which need to be strengthened.

10th Grade

Science is our students' strong area. Composition remains an area in need of improvement and special programs are being developed to strengthen it.

11th Grade

Science is again our students' strong area. Composition and literature continue to be areas in need of improvement.

3) Has the student made reasonable progress during the year?

An increase of from two to four points should be regarded as the normal range of growth during the year.

9th Grade

The growth of students in all subject areas falls within the acceptable range. It is encouraging to see that the greatest growth was in composition (3.7) – an area that was slightly below the expected level. Reading also experienced significant growth (3.7).

10th Grade

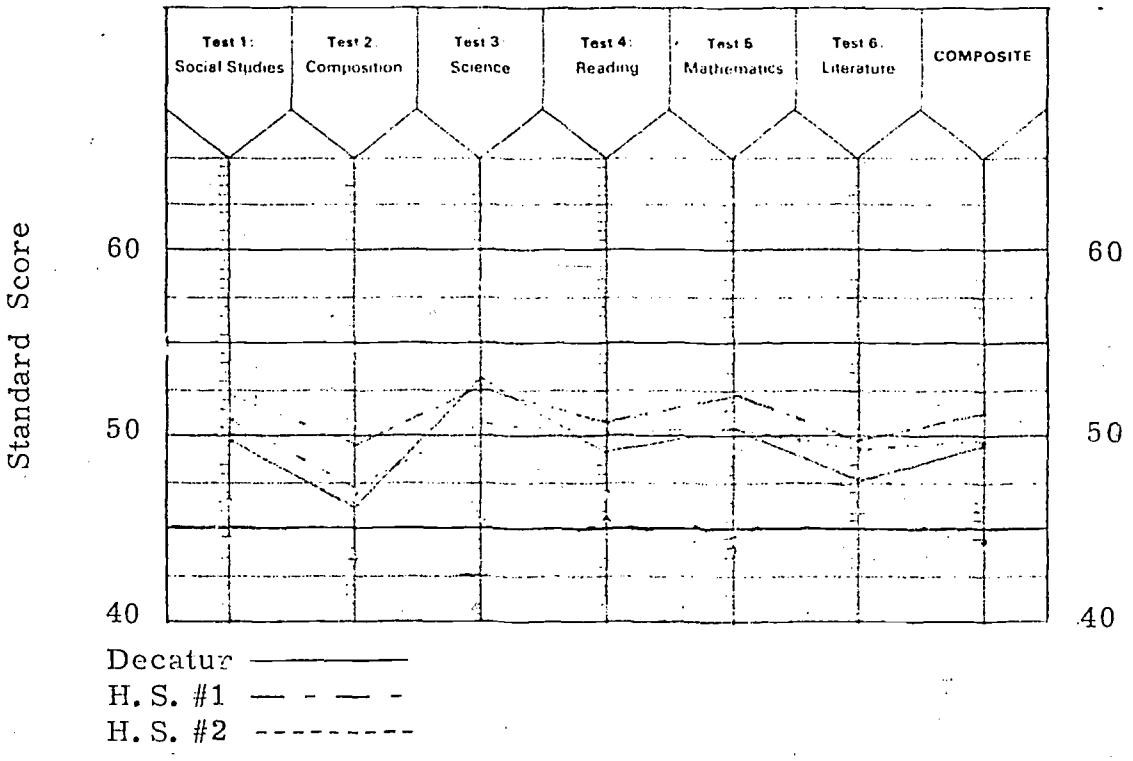
The growth of students in all subject areas falls within the accepted range. It is discouraging to see that the smallest growth was in composition – an area in need of improvement. However, the fact that our 10th grade students were functioning below the expected level when they came to us from junior high school must be considered.

11th Grade

The growth of students in all subject areas falls within the expected range. The smallest growth is in math (2.0), however, the overall achievement in math is above the expected level. The growth in literature and composition was encouraging in the light of low scores in both areas on the Fall test.

4) How did 11th grade students at Decatur achieve in comparison to 11th graders in the other high schools in Federal Way?

Comparison of 11th grade students in the three Federal Way High Schools



The objective of our program during this first year of operation was to transition students into an individualized program without adversely affecting their achievement. This may be measured in two ways:

1) By comparison of the absolute levels of achievement of each high school.
2) Measurement of growth in achievement during the year.

1) Our level of achievement in four of the areas measured is comparable to that of one or both of the other Federal Way high schools.

Three of the areas were below both of the other schools. Only one of these, composition, was significantly below the expected standard score of 50.0 and specific programs for improvement in this area are being planned.

2) As stated previously, the growth of 11th grade students in all subject areas falls within or above the expected range.

It appears to us that the achievement of Decatur students has not been adversely affected by our individualized program. In fact growth in achievement in most areas is much more than anticipated.

These achievement scores on the TAP are important. There are many factors, however, which must be considered if they are to be correctly interpreted. A student's previous experience, his home background, his socio-economic status and his physical and mental health must be considered in arriving at a judgment about expected levels of achievement. Intelligence measures also help the classroom teacher and others in the school to plan learning experiences which give each student the optimum opportunity for learning.

Interpretation of Lorge-Thorndike Results

In a large group of students we should expect intelligence scores to fall in a predictable pattern. Approximately 68% of all students should fall between 90 - 110, the "average" range. Above this we would expect 13.5% from 110 - 120 and 2.5% from 120 - up. On the lower range or "below" average we would expect 13.5% from 80 - 90 and 2.5% from 80 - down.

An examination of the results of the Lorge-Thorndike Intelligence Test reveals that the measures of intelligence of students at Decatur do not fall in this predictable pattern. This test measures intelligence in two ways – verbal and nonverbal. The results of these two measures of intelligence were very different.

The chart on the following page shows the distribution of verbal and nonverbal intelligence scores for all students at Decatur.

ANALYSIS OF ACADEMIC MENTAL MATURITY TEST DATA

Reasonable expectations on the measures obtained from achievement test scores can be identified by considering the distribution of I.Q. scores in the student population. Table 3 illustrates the distribution of 9th, 10th, and 11th grade students by percentage of students representing regions of the Normal Distribution.

TABLE 3. Distribution of student I.Q. scores as compared to expected percentages in a normal curve distribution. N=Normal Distribution, 9=Ninth Grade Distribution, 10=Tenth Grade Distribution, 11-Eleventh Grade Distribution, C=Composite.

	VERBAL				
	Down - 80	80 - 90	90 - 110	110 - 120	120 - Up
N	2.5%	13.5%	68%	13.5%	2.5%
9	9.0%	19.0%	58.5%	10.1%	3.4%
10	7.3%	20.3%	46.3%	12.2%	13.9%
11	4.2%	10.4%	58.3%	19.8%	7.3%
C	6.8%	16.9%	53.6%	13.9%	8.8%

	NONVERBAL				
	Down - 80	80 - 90	90 - 110	110 - 120	120 - Up
N	2.5%	13.5%	68%	13.5%	2.5%
9	4.8%	5.9%	53.0%	17.7%	18.6%
10	4.0%	12.0%	40.8%	21.6%	21.6%
11	5.3%	5.2%	49.5%	15.8%	24.2%
C	4.6%	8.2%	46.8%	18.7%	21.7%

SUMMARY

Measurement of I.Q. on the verbal test shows that 6.8%, compared to an expected 2.5%, of our students have intelligence scores below 80, the "low" intelligence range. Another 16.9%, compared to an expected 13.5%, score from 80 - 90, the "below" average range. The percentage of "above" average intelligence scores is about as leaves in only 53.6%, compared to an expected 67%, of our students have "high" intelligence scores of 120 and above. The unexpected percentage of students with very low and very high intelligence scores results in only 53.6%, compared to an expected 67%, of our students scoring in the "average" intelligence range of 90 - 110.

The high percentage of students, 23.7% as compared to an expected 16.0%, who fall below the average intelligence range may represent one factor in our low achievement scores in composition and literature — subjects which require good reading ability.

Students' scores on the nonverbal test seem to give additional weight to this belief. The low percentage of students, 12.8% as compared to an expected 16.0%, who fall below the average intelligence range may indicate that many students have difficulty in taking verbal intelligence tests and do not, as it may appear, have low intelligence.

We have no explanation for the exceptionally high percentage of students, 40.4% as compared to an expected 16.0%, who scored above the "average" intelligence range.

Experience has shown that verbal test items give a good measure of ability to do typical classroom assignments and provide a good index of scholastic aptitude. The nonverbal items give an estimate of scholastic aptitude which is not directly dependent upon ability to read.

2) Measurement of student attitudes toward our program are reflected in Part II of our student questionnaire given in December, 1971. This questionnaire will also be given in the other high schools in our district. Comparative data will be available soon.

Results of Student Questionnaire

1.	Agree	Disagree	Adults in this school are more interested in controlling kids than they are in helping them to become successful human beings.
Fall	21%	79%	
Spring	23%	77%	
2.	Agree	Disagree	Teachers around here seem willing to give up their own free time to help students.
Fall	83%	17%	
Spring	82%	18%	
3.	Agree	Disagree	Education in this school is boring.
F	21%	79%	
S	24%	76%	
4.	Agree	Disagree	Very few people in this school really care what happens to the problem students.
F	36%	64%	
S	29%	71%	
5.	Agree	Disagree	The student in this school learns because he feels it is important for himself--because he wants to learn.
F	78%	22%	
S	83%	17%	
6.	Agree	Disagree	Teachers in this school seem to get upset so easily. Any little thing sets them off.
F	11%	89%	
S	14%	86%	
7.	Agree	Disagree	There is a wide variety of clubs and activities available in this school.
F	81%	19%	
S	59%	41%	
8.	Agree	Disagree	Adults in this school seem to forget the problems they had in high school.
F	35%	65%	
S	30%	70%	
9.	Agree	Disagree	Troublemakers in this school are treated fairly.
F	73%	27%	
S	75%	25%	
10.	Agree	Disagree	Teachers in this school understand what it is like to be a student.
F	69%	31%	
S	77%	23%	
11.	Agree	Disagree	I'm just one of a big crowd here. Nobody really deals with me as an individual.
F	18%	82%	
S	14%	86%	
12.	Agree	Disagree	Teachers and administrators in this school are afraid to let kids deal openly with controversial, important issues.
F	23%	77%	
S	34%	66%	
13.	Agree	Disagree	The student newspaper adequately represents student views.
F	46%	54%	
S	41%	59%	
14.	Agree	Disagree	The adults in this school really seem human.
F	86%	14%	
S	83%	17%	
15.	Agree	Disagree	There are far too many rules and regulations in this school.
F	17%	83%	
S	23%	77%	
16.	Agree	Disagree	Adults in this school are really pretty honest in their dealings with kids.
F	87%	13%	
S	85%	15%	
17.	Agree	Disagree	It wouldn't matter to me whether I went to this school or some other one.
F	17%	83%	
S	20%	80%	
18.	Agree	Disagree	People in this school are concerned about helping each other.
F	67%	33%	
S	72%	28%	
19.	Agree	Disagree	Teachers in this school are just about the same as they are in other schools I've attended.
F	32%	68%	
S	43%	57%	
20.	Agree	Disagree	Students in this school have a lot to say about how the school is run.
F	77%	23%	
	69%	31%	

Data on our later questionnaire is not available for this report.

F. By May 15, 1972, a survey of the records will be completed regarding —

Decatur	H.S. #1	
92%	92%	1) Attendance (predicting equal or better)
3%	3%	2) Suspension (predicting equal or reduced)
58%	58%	3) Truancies (predicting equal or reduced)
14%	2%	4) Transfers in by request (4 & 5 about equal)
5%	---	5) Transfers out by request
6%	8%	6) Dropouts (predicting equal or reduced)
---	---	7) Credits earned per student (predicting equal or greater)
---	---	8) Grade averages (predicting equal or improved)

* Survey of records is still in progress for some of these items.

G. All visitors will be asked to evaluate their observations throughout the year using the criteria stated in item C.

PROJECT 80 - PHASE III
Visitor's Evaluation

During your visit to our school, did you observe that:

1. Students are pursuing specific learning objectives

   Yes 156 No 4 Not Observed 12

   Comment:

2. Students display a positive self-image

   Yes 119 No 4 Not Observed 43

   Comment:

3. Students are taking part in community learning projects

   Yes 74 No 1 Not Observed 92

   Comment:

4. Students are using many forms of media and materials

   Yes 162 No 2 Not Observed 10

   Comment:

5. Students accept responsibility for their own learning

   Yes 141 No 1 Not Observed 19

6. Students are applying their learning beyond bookwork

Yes 110 No 1 Not Observed 60
Comment:

7. Students are involved in planning their own programs

Yes 151 No 3 Not Observed 32
Comment:

8. Students have goals beyond school

Yes 51 No 3 Not Observed 113
Comment:

9. Students work closely with their advising teacher

Yes 103 No 6 Not Observed 113
Comment:

10. Students are developing saleable skills

Yes 114 No 2 Not Observed 55
Comment:

11. Students have a positive attitude toward school

Yes 145 No 2 Not Observed 27
Comment:

WHAT DID YOU LIKE ABOUT OUR PROGRAM?

Students are able to work at their own rate without constant supervision.

Grading system is good.

Good design of building - architecture, landscaping, openess.

Sincerity of the staff - enthusiasm and beleif in what they are doing.

Self-motivation of the students - continuous progress - relaxed and confident.

Students managing their own school program - responsibility - student interest.

Vocational area is great! Home Ec - Shop - Art

Teacher flexibility.

Individualized instruction - LAP's

Students more relaxed - students can be individuals.

Open labs.

Excellent equipment.

Variety of subjects offered.

AV material available.

Flexibility of the schedule.

Casual relationship between teacher and student.

Teacher participation with the student instead of teaching at the student.

WHAT DIDN'T YOU LIKE ABOUT OUR PROGRAM?

Boy - girl relationship overworked.

Not enough supervision.

Noise — confusion among students.

Some students too inmature to handle this type of program — need more supervision and motivation.

Student atmosphere too casual.

Too large - open spaces.

SUGGESTIONS FOR OUR PROGRAM.

More group work.

Start a program earlier in the elementary grades.

Cut down on paper work.

More teacher participation or help - maybe some lectures.

Please continue the program - keep up the good work.

H. Working in cooperation with teacher training institutions, the Office of the Superintendent of Public Instruction, and other agencies, Decatur High School will serve as a demonstration and training laboratory for teachers, and people of the community. Every phase of the program will be open to evaluation and modification as better approaches are found. At least 500 visitors are expected during the 1971 - 72 school year if adequate staffing is available. All visitors will be used as resources for students and staff. Visitors will also be asked to provide the staff with evaluations of their observations.

* We have provided demonstrations and training for over 500 students, student teachers, teachers, administrators, and parents. Many have evaluated our program using the instrument shown in part G. These have been helpful and modifications have been made in the program based upon these evaluations.

Is a learning management system using learning packages a feasible base for a total high school curriculum? From our observations and experiences, and from the research we have done on learning packages, we feel that it is not only feasible but a very worthwhile goal. At this point the sophistication of development of Learning Activity Packages has a long way to go, but it seems to be the best approach we have seen to meeting student needs.

The task of implementing a total high school curriculum based upon Learning Activity Packages has required a tremendous effort and a high degree of dedication on the part of the staff. We have found that our past training in teacher training institutions is inadequate to manage a learning system based upon individual progress. Such a system has required a major change in the teacher's role and a major re-orientation, including extensive and continuous in-service training and reinforcement.

Our program was developed by a staff of traditionally trained teachers who have been provided planning time and training during the summers, the administrative support, and the financial support to move into different roles. We have seen many positive benefits for our students at Decatur High School. These included:

1. Individual Decatur teachers demonstrated a very high respect for what individual students can do on their own. They are very sensitive to student interests and how they can make learning activities more interesting and meaningful to the students.
2. Because the Decatur teachers have developed a sensitivity to student needs, a close relationship between staff and parents have developed. About sixty (60) parents and townspeople have

volunteered to help students and teachers during the school day and in the after hours programs.

3. Improvement in student behavior:
   a. Self-confidence. Many visitors have been quite impressed with our students' self-confidence in using LAP's as a learning tool.
   b. Self-direction. Most of the students seemed to have a plan beyond high school classes. Many students show resentment toward teachers who are not prepared and who wasted the students' time with trivial busy work.
   c. Positive Attitudes Toward School. While most students found some criticisms of the Learning Activity Package program, most express a strong preference for the Learning Activity Packages over the traditional programs. They felt they were developing more self-discipline, making more decisions, and were better prepared to go to either college or directly to work. Only about one in ten stated a preference to return to the traditional system.
4. Student dropouts have decreased.

   Working with the philosophy that students have a better chance to learn if they are in school, the Decatur staff has adopted the attitude that some kind of program can be adapted to every student. Programs are individually modified to focus first upon student interests and the basic skills he needs to function as an adult in society. As a result, only 6.0% of our students have voluntarily discontinued their education this year. This is in contrast to the dropout rate prior to the implementation of this program.
5. Discipline problems have been reduced.

   During the 1971-72 school year, the staff reports that discipline problems were reduced. Most of those that did occur fell into two categories--truancy from class and smoking in the restroom. Student-teacher conflicts were almost non-existent.

6. Vandalism was minimized.

   According to the head custodian, estimated vandalism should amount to nearly $500.00 each year before the LAP program was introduced. He stated that the total vandalism in the past year has been about $175.00.

7. Failing grades have been minimized.

   In order to help students develop more positive attitudes towards themselves, most students receive a grade of "incomplete" if they do not perform at a minimum level. Because the requirements are stated as learning objectives, he works at his own rate to meet the objectives. This factor also seems to have helped to change teachers' attitudes towards students in stressing motivation and encouragement rather than using the failure as a club.

The Decatur staff has systematically sought out potential pitfalls in implementing a Learning Activity Package program. We have found the staff and students to be very cooperative, very frank, and very open minded about their successes and failures. When these problems are approached with rational consideration of different alternatives, it appears that each can be solved through careful planning, training, and reorganization of resources.

1. Reading.

   Since much of the Learning Activity Package is based upon being able to read and interpret books, audio-visual devices, and other materials, it is very crucial that a student be able to read. From this standpoint it appears that perhaps one-third of the students may be handicapped in their learning progress as a result of poor reading habits. However, this is little different from our traditional programs. It does mean, however, that a strong emphasis must be put upon a firm reading program in the junior high schools and a continuing developmental program at the high school level.

2. Teacher time to prepare packages.

   The preparation of a good Learning Activity Package is quite time-consuming. It takes considerable time to refine and agree upon learning objectives. It takes considerable time to review the many

2. (cont.) resources available and to recommend those which are most suitable to help students achieve those learning objectives. This kind of work requires sustained effort--free from interruptions. While many Decatur teachers have been forced to prepare learning packages while teaching, they have found it very exhausting and detracting from their work with individual students. This kind of work is best done during the summer when students do not demand so much time.

3. Teachers must learn to manage packages.

   The use of packages with students requires many changes in the teachers' mode of operation from the traditional classroom. Teachers beginning to use Learning Activity Packages are commonly swamped by trying to handle every detail themselves. Details and non-teaching functions must be delegated to student assistants, aides, para-professionals, and parent volunteers. Teachers must also learn to write the activities in such a way that students correct many of their own lessons and simplify the process of evaluation.

4. Student delays in seeing the teacher for individual conferences.

   Some criticisms from students are related to delays they faced in trying to talk to the teacher for individual conferences. The problems involved: reluctance of "shy" students to ask for help; poor management of time on individual interviews, allowing some students to monopolize the teacher's time; requiring too many routine contacts with the teacher as a part of the activities (many of these contacts could have been handled by a more advanced student in the class); poor recordkeeping systems; and lack of individual supervisory help for the teacher.

5. Package production.

   We have learned that one of the most vital factors in implementing the Learning Activity Package program is to have an efficient production system. In looking at several other programs that

5. (cont.) attempted to implement the packages we found that the staff developed a great frustration and later abandoned this system because of the long delays or the poor quality of packages produced. If learning packages are implemented on a broad base, considerable attention and study must be given to setting up a production facility and staff that can adequately produce and process the packages to get them to the teacher in the minimum amount of time. This equipment is quite expensive but must be considered an integral part of the program. Such costs are offset in the long run, by the decreased number of textbooks required and the decreased amount of instructional equipment required as a result of more efficient use of that equipment.

6. Motivation of slow learners.

   The motivation of slow and reluctant learners is a problem in any system. In some cases these students have failed so many times, are so far behind, and have so little confidence in themselves that they have learned to play other games to compensate. Coupled with their poor reading skills, Decatur found it necessary to put some of these students under carefully controlled, teacher-paced situations. Some chose to do nothing, the same as they do in traditional classes now. However, the Decatur staff and students seem to feel that many of these students were further ahead than they had been under the traditional system. Nevertheless, special provisions must be made for these students.

CONCLUSIONS AND RECOMMENDATIONS

In the course of its research and observations the Project 80 staff has come to several tentative conclusions about the development and use of learning packages:

1. Our involvement in Learning Activity Packages is a part of a massive ground swell of programs across the country that are geared to:
   A. Individualized instruction to allow students to advance at their own rates.
   B. Packaging instruction into small units that promote student success with short range goals.
   C. Focusing instruction upon behavioral and performance objectives that can be observed and measured.
   D. Changing the emphasis of standards from a time criteria to performance criteria.
   E. Recognition of different styles of learning by offering students options in the use of different media, materials, and methods.
   F. Concentration upon the systematic management of learning and resources.
2. Teachers must develop several learning packages before they are able to accept and to use them effectively--it is easier to lecture.
3. The costs of developing individual sets of packages for each school or even each district would be prohibitive if the system were to be widely used. Present practices within traditional schools encourage and promote the idea that each teacher has the right and - to some - the obligation to teach his subject uniquely different from every other teacher. We see teachers who teach the same subject in the same school and insist upon developing separate LAP's to teach the same concept. Since learning packages should be designed for students, we feel that more emphasis in teacher training must be given to developing a sense of teamwork and sharing of planning responsibilities. Specifically, teachers must be taught to use learning packages developed by other teachers.

4. Formats need to be standardized in order to encourage interchange of learning packages.
5. The emphasis in developing learning packages should be placed upon how the learner learns rather than how the teacher has taught the subject matter in the past.
6. Teacher training institutions must accept a leadership role.
   A. Colleges must become involved in re-training their own staffs to use and manage learning package materials as well as to develop them.
   B. Colleges across the state and the nation should provide coordinated leadership in developing teacher skills to use packaged learning materials.
   C. Colleges should coordinate the efforts of groups of teachers in various disciplines to develop comprehensive sets of learning packages that allow students to approach concepts from different levels of ability and interests.
7. Districts should be alert to support principals and teachers who want to develop skills in the use of learning packages and provide released time and summer workshops to develop curriculum.
8. The State Office should take a strong leadership role in promoting training programs for administrators and teachers through--
   A. Intensive seminars for all staff members of the Office of the Superintendent of Public Instruction in the development and promotion of learning package systems.
   B. Intensive seminars for superintendents, their staffs, coordinators and principals in the development, management, and administration of learning package systems.
   C. Orinetation sessions for State and Local School Board Members including exercises in developing simple packages.
   D. Intensive seminars for curriculum-oriented professional groups.

8. E. Concentrated effort to develop several demonstration schools around the state where evaluation, modification, technical services, and teacher training is an on-going effort with the help of state specialists.

F. Take the lead in establishing clearing house centers throughout the state for the collection, reproduction, cross-cataloguing, dissemination, and distribution of individual learning packages (including audio-visual packages) and resource materials developed through public funds.

9. The U.S. Office of Education should draft a plan for congressional approval and funding to--

A. Establish an organization and funding similar to the National Science Foundation to promote a unified curriculum study to identify a set of common behavioral objectives essential for all students to function with economic and social self-reliance. This study should be approached by professional educators and lay citizens representing all economics, educational, social, ethnic groups, races and ages. All appropriate technology and scientific decision making processes should be employed. The findings should be widely published for self-evaluation purposes.

B. Establish programs to promote re-training of college staff members at teacher training institutions in the development and use of learning package systems.

C. Establish programs to promote college staff members to work with the teachers in their own schools to develop and use learning package systems.

D. Establish programs to encourage the release of teachers from part of their teaching duties to participate in learning new skills and learning management techniques.

9. E. Establish programs to promote the development of state or regional centers for the collection, reproduction, cross-cataloguing, dissemination, and distribution of individual learning packages (including audio-visual packages) and resource materials developed through public funds. Development of learning packages by private publishers should be encouraged and expedited.

F. Establish programs to encourage the development of demonstration schools that are adequately funded over ten year periods to conduct on-going evaluation, modification, technical services, long-range planning, and continuous teacher training. These programs should be protected from the political tides but subject to periodic professional review and guidance.